Electric Railway Journal

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Follow-Up Work with Inefficient Motormen

RECENTLY we discussed the possibility of maintaining the interest of motormen in car-checking devices by showing them the direct connection between higher efficiency and higher wages. However, the financial inducement is not the only one. A great deal can also be obtained by personal follow-up work. When a motorman is showing a low coasting average, and consequently high energy consumption, without apparent reason, it will prove more effective to ride with him in person instead of ride him by correspondence. This implies that an experienced car operator should be at or near the head of the department for, after all, knowledge of transportation conditions is the *sine qua non* in the analysis of coasting. It is far better to approach an inefficient motorman with the attitude of "let me see if you and I can't find out what's wrong with the car and the run." The average individual is bound to appreciate this man-to-man policy. If the instructor, who is quite green to the run, does better than the regular operator, the latter will be a peculiar individual indeed if he does not vow to learn and apply the secrets of efficient car operation.

Forehandedness in Service Capacity Now Paramount

IT was recently pointed out in these columns that the present seemed to be a good time for the electric railway companies which are in position to sell power at a profit to build up their commercial energy load by taking on some of the small isolated plant loads. The latter are harder pressed in the way of coal and supplies in these times than are the large corporations and in many cases may be quite ready to turn the worries of coal and oil and labor supply over to another. There are, of course, two sides to this subject. Lucky is the commercial power company to-day that has much generating and transformer capacity to sell. One manager of a small Indiana electric railway recently stated that he was 5000 kw. of transformer capacity behind his needs and could not get any help. This is only typical of the general condition. The answer to the situation is purely a matter of forehandedness. With conditions in the industry favoring a rapid increase of the commercial lighting and power load on electric railway plants, advantage should be taken of these conditions, and this can be done if the needs for equipment to supply this business are anticipated far enough in advance. Forehandedness is of paramount importance in these abnormal times.

Clear the Streets for Trolley Traffic

IN the rush of problems relating to higher fares, preparations for national defense and other conditions brought on by the war, the efforts of electric railways to secure relief from traffic delays caused by street congestion should not be relaxed. This problem is one which concerns cities of moderate size equally with those of metropolitan character. Indeed, the conditions may often be worse in the smaller cities because, as a rule, less attention is given in them to the enforcement of traffic rules. One of the most irritating features of the situation is that the present vehicular interference is to a large extent avoidable. In one state at least the electric car has legally a superior right on the streets to the public, whether on foot or in vehicles. This superior right is based partly on the fact that the electric car cannot turn out or leave its tracks, but also because the possession of such a right is in the interest of the public as a whole. This point cannot be too strongly emphasized in any discussion of street congestion. The more quickly the cars get over the line, the better the public is served. Let us have more strict regulation, then, against street congestion, especially against that most serious evil, being committed in practically every city in the country, of automobile owners parking their cars on narrow traffic streets.

Durability of Porcelain Transmission Line Insulators

THE discussion at the A. I. E. E. meeting last week on line insulators was a bit discouraging to those who focus attention too fixedly on the difficulties which are being encountered in this field. We prefer to look at the marvelous progress that has been made, as the insulator has been improved step by step to keep pace with the demand for higher and higher transmission voltage. Once the physical characteristics of the insulator itself limited this voltage, but now the limit is set largely by general economic conditions. Insulators can be built for any voltage within reason, but of course the higher the voltage the more expensive and less durable will be the insulators and other elements of the system. It is unfortunate that porcelain, still the best material available for high-tension insulator making, should be so susceptible to the subtle, as well as violent destructive actions of the elements. Its virtues for insulating purposes are so great, however, that the exhaustive studies of its properties which are being made by experts throughout the country are justified and

inevitably will bring even finer results than they have brought so far. The microscope and the polariscope, as well as the mechanical testing machine and high-voltage electrical apparatus, have all been pressed into service and the effect is being felt. Quartz has been suggested as a substitute for porcelain and has some elements of promise, but until everything possible has been done to attain perfection in porcelain manufacture and in its utilization there is no reason to abandon it. Its record has been highly creditable. To be sure, the life of porcelain in insulator service is not infinite, and the present maintenance costs on early transmission lines may be high. But there is nothing unique about this as the same situation has developed in every rapidly advancing art, and the insulator engineers can be relied upon to "keep up with the procession."

Are City Cars Made for Collisions or Passengers?

WE sat in lately on a rather heated discussion which might best be designated by the title presented. The scrap began with the wail of a car builder that if one of the "tin cans" which a competitor was building ever got into a collision, the consequences would be such as to kill both the passengers and the "tin can" school of car building at one blow. His opponents readily admitted that some designs of recent cars were of feather weight but not of feather noiselessness. "Here," they said, "is room for improvement in springs and shock absorbers, but we deny the implication that the first consideration in building a city car is to make it collision-proof. It is our contention that the basic consideration in building a car for city service is to carry passengers. Why should a car be built with the idea that although held to a well-defined track it is going to be the target of crazed Fords and demented motor trucks? Are automobiles being made collision-proof?"

For our part, we believe that for unit-car city service the weight of a car should be fixed fundamentally by conditions of load, speed and track and only secondarily by considerations of longevity and resistance to collisions. As to longevity, we are beginning to feel that longevity in city cars, due to extra heavy framing and plates, has been overdone to the point of hindering the widespread adoption of cars which are more efficient operating units. We have seen one company spend $1,200 to remodel a five-year-old 50,000-lb. car when it would have been far wiser to have junked the car for a faster, safer and more economical design of one-third the weight. It is not on record that manufacturers tinker and retinker a machine tool until it wears out. They buy the newer, better ones outright. If railways learn to look at street cars in the same way, namely, as a production unit, measured by passenger and car-mile output at such and such comparative costs, they will put less money in dead metal and more money in equipment for high acceleration, quick braking and automatic operation.

As to collisions, what are the real figures? Is it not a fact that cross-track collisions are relatively scarce and that both cross-track and front-end collisions are less likely with a light, quick-braking car than with a heavy, slow-braking car? We suspect also that claims from vehicle owners for heavy damages will sound less reasonable when traction battleships disappear. Front-end collisions are largely under the control of the motormen. There may or may not be significance in the fact that on a certain railway the cars which have practically no collision protection for the motormen enjoy fewer rundowns than the cars which do have such protection. Too strong a sense of security can be quite as bad as no security at all.

An Affiliated Association for the Manufacturers?

LAST week the executive committee of the American Association reaffirmed its approval of the formation of an affiliated association for the manufacturer members and invited them to organize such an association. If they do so there will be three manufacturers in the executive committee, including the president of the affiliated Manufacturers' Association. In reaching its decision the executive committee had practically a choice among only three plans, involving an affiliated association, or an autonomous but closely-related separate association, or a manufacturers' committee in the main association to handle exhibits.

If the manufacturers accept the invitation of the parent association and organize as an affiliated association, a modification of the original general purpose of the group of affiliated associations adopted when the association was reorganized in 1905 will be necessary. The thought at that time was that the affiliated associations were to investigate technical questions. This is shown by article XII of the by-laws, which states that "the association shall do all in its power to promote the welfare of other associations organized with its approval to investigate technical matters connected with street and interurban railway construction and operation." Obviously the manufacturers have no separate technical interests in the sense intended in the by-law, such technical problems as they do have requiring their co-operation with the appropriate affiliated association, either the Engineering or the Transportation & Traffic Association.

The main function of the manufacturers as far as the association is concerned is to manage the exhibit feature at the conventions. Assuming that the association follows the proposed plan, a form of charter and constitution quite different from that of the other associations will be necessary. In the preparation of this charter every effort should be made to give the manufacturers virtually all of the rights and privileges which they enjoyed in a separate organization. It is desirable, therefore, in fact it is essential, that the plan of the suggested organization be formulated at once and laid before the industry for careful study in all of its bearings. Only such procedure will form a safe and sure foundation for a permanently

satisfactory action on the application. The railway men should apply to the manufacturers the same principles which we have urged them to apply to the public and strive for better public relations. To make any plan a success it must appeal to the manufacturers as the best one available, one which encourages their initiative and accomplishes their purposes in belonging to the association.

The manufacturers are now company members of the American Association. By and large they have accepted the idea of unity throughout the industry and are paying their dues into the association on the same basis as the railway men. This is right and proper. The industry is in a bad way. If all parts of it do not hang together very soon they will "hang separately." There is no time or room for dissensions and destructive work. All thinking and work should be constructive in the interests of the industry as a whole. As far as the absorption of the manufacturers into the American Association is concerned the thing has been done. The executive committee of the parent association determined upon a plan or method of procedure. The manufacturers stood for it in principle but deplored the methods used. They felt that they should have been consulted beforehand. But as we have said the time for debate has gone by, and now all, manufacturers and railway operators, should put their shoulders to the wheel and devote their best efforts to the interests of the industry.

The Railway Prayer—Give the Commissions Vision

AS a rule, we are only indirectly interested in steam railroad rates, but the 15 per cent rate decision handed down on June 29 by the Interstate Commerce Commission has made an unusual impression upon us. In it there is an important outlining of rate-making philosophy of direct concern to all instrumentalities that must submit their rates to public approval. In the majority and minority opinions, three views of rate regulation are expressed—views which ought to be called to the attention of all electric railways.

The first is that expressed in the majority opinion. According to this, the record does not disclose the existence of a situation requiring "so heroic a remedy" as a 15 per cent increase in rates. To the commissioners' minds, the revenue showing seems better now than it did last February, and although many operating expense symptoms are "unquestionably unfavorable" and "much or all of what some railways believe will occur, will occur in the future," no one can know in advance. The absence of protests against the proposed increase the commissioners dismiss as without significance as a basis in rate-making, inasmuch as this indicates simply "a state of the public mind." Hence they refuse to grant more than a modicum of relief, but promise to keep an eye on the monthly returns to see whether the carriers' fears are justified. This is undoubtedly an honest view, but it is narrow and inadequate. As Commissioner Harlan states in a separate opinion, it is a "month-to-month and purely statistical" view.

For the next view let us look at the dissenting opinion of Commissioner McChord. He believes that the need of higher rates is a matter of government policy, and not of the making of reasonable rates. He asks whether the commission should approve an increase predicated upon prophecies in order to strengthen railway credit or whether the prices of materials and supplies should be regulated by Congress. Until the apprehensions of the railways are realized and it is clear that Congress will not act in the matter, he says, the commission is not justified in burdening the public with increased rates. This view is not so narrow as that of the majority, for it recognizes, although in a halting way, the desirability of a general investigation of operating cost tendencies rather than a short-sighted scrutiny of monthly statistics. But the view is of one without initiative, without a sense of personal responsibility in the full exercise of delegated powers. Rate making is now a commission, not a legislative matter. Whether Congress will or will not regulate prices is not the issue. Be the operating costs high or low, the commission should give them full consideration in establishing the rate basis.

What a different view from the others is the third one! Commissioner Harlan, concurring in the majority opinion only because his vote was necessary to give the carriers even the relief therein granted, thinks it not "safe" to take merely a narrow statistical view of the railways' need. With some operating factors undoubtedly unfavorable, he states, the wisdom of deferring full relief is not apparent. The country needs railway development, not simply because of war's exigencies, but because of its growing business. The shippers are ready for higher rates, provided they secure better service. And he adds: "A rate is a public question, and existing rates could well be advanced in the public interest. As long as we look to private interests to furnish transportation service, we must see to it that the rewards are sufficient to attract capital for its further development."

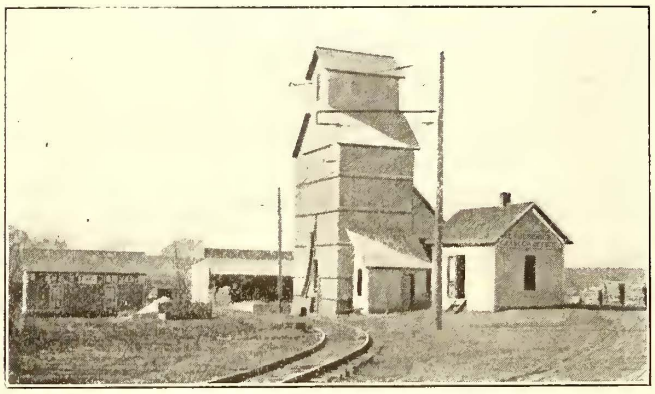
Which of these views is really constructive? Which is based on a realization of responsibility not to shippers, not to carriers, not to politicians, but to public welfare? Without question, the broad and wholly commendable view is that of Commissioner Harlan. The points he makes are vitally important to electric railways as well as steam railroads. Even now public service commissioners are considering in many places the need of higher electric railway fares. What will be their attitude? Will they be statistical fanatics, or will they try to shift their duties to the legislatures, or will they attempt in a broad-minded, far-seeing way to meet the basic public need of improved transportation facilities? We profoundly hope that their attitude will be that last stated, for, to paraphrase the proverb of a wise man of old, "where there is no vision, the railways perish."

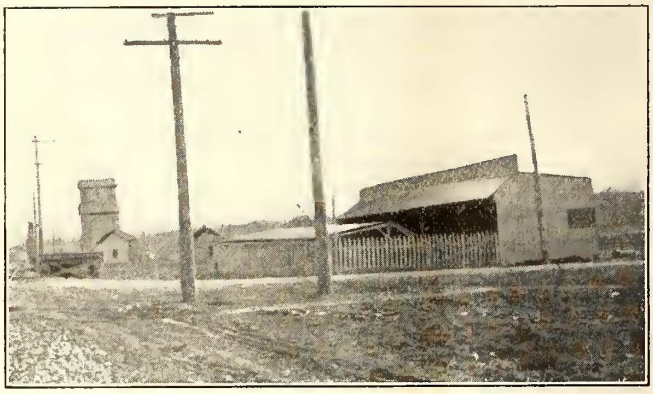
"Better Service" Brings $70,000 Freight Business in Third Year

Some of the Policies and Methods Employed by a Western Road to Attract Freight Traffic to a New 75-Mile Electric Line Are Related, Also an Account of How Severe Competition Was Overcome

By J. F. HOLMAN
General Freight Agent Kansas City, Clay County & St. Joseph Railway

IT is a well-established fact that the steam railroads derive the major part of their earnings from the freight business, while electric roads depend chiefly on the passenger business for any profit. Should electricity be substituted for steam motive power, electric railroads might be declaring dividends earned in a great measure from the handling of freight. This would seem to indicate that the motive power is not the determining factor as to which branch of the business should be most profitable. There can be no question but that electric lines have solved the problem of making passenger traffic pay; likewise, steam railroads have been particularly successful in the handling of freight traffic. But the reverse in either case should be likewise a profitable pursuit and the railway managers could well devote their principal efforts toward building up the weak side of the transportation business.





TYPICAL GRAIN ELEVATOR AND BUILDING MATERIAL INDUSTRIES

It is my opinion that there is a large field for improvement by electric roads in the development of freight business. This means, of course, more motive power, large, adequate terminal facilities, sidings for industrial locations, joint rate and traffic arrangements with other carriers. The electric roads maintain their high efficiency in the passenger business by giving "better service," and this will necessarily be the key to a larger increase in the freight business.

The Kansas City, Clay County & St. Joseph Railway is located in a reasonably thickly populated country, with terminals at Kansas City, St. Joseph and Excelsior Springs, Mo. The farmers raise a surplus of grain, livestock, poultry and fruits. The company enjoys an enviable passenger traffic, and has a freight business which is on a par with the higher-grade electric interurban railroads in this country. It is hoped, however, to make it a freight as well as a passenger road, and it is to this end that the writer is working.

This road started operation in 1913. Located, as the property is, in a highly competitive territory, it was necessary to establish first the idea of "better service." By advertising it as "express-freight service," demonstrating to the shipper the advantages of such service, and giving special attention to complaints such as are bound to be made by shippers, the business has been increased continually since the operation of the road was begun.

Dependent upon local conditions in the different territories, it is necessary and possible to work out many features which will stimulate the movement of freight. Among some of the more important ones that have had the desired effect on this property are those described in the following paragraphs.

Combination Elevators, Lumber and Supply Yards

Not long after this road began operation there arose a demand for interchange with some steam railroad which would give joint rates on carload movements of grain and other commodities, in and out of a territory not heretofore served by any steam railroad. Joint rates and traffic agreements were made with the Chicago, Great Western Railroad, which parallels this line a portion of the way to St. Joseph, thereby giving especially advantageous connections with the productive sections of the country through which the electric road runs. A reliable grain man became interested and erected three elevators at different points along the road. However, before the elevators were erected at suitable points and the through rates could be put into effect, it was necessary that ten of the side tracks along this road be moved to points adjacent to the public highways. The farming communities along the line were glad to assume this entire expense, and in some cases the cost was as much as $2,000 per switch.

The elevators were built, and in addition lumber yards and coal bins were erected where coal, sand, stone and other building material could be handled at great convenience to the farmers. Shipments to and from these establishments are handled chiefly in foreign equipment and under joint rates, this road receiving a percentage of the joint through rate.

The arrangement made with the steam railroad was on the basis of car service, rather than under the per diem rules, which permits of our company having a foreign car practically three days without expense to us. Even where expense occurs it is usually borne by the shipper chargeable with the delay. In view of the fact that it is possible for this road to interchange with only one steam railroad the plan is satisfactory, but if we interchanged with more than one road some different plan would have to be made.

Raising of Fruits Encouraged

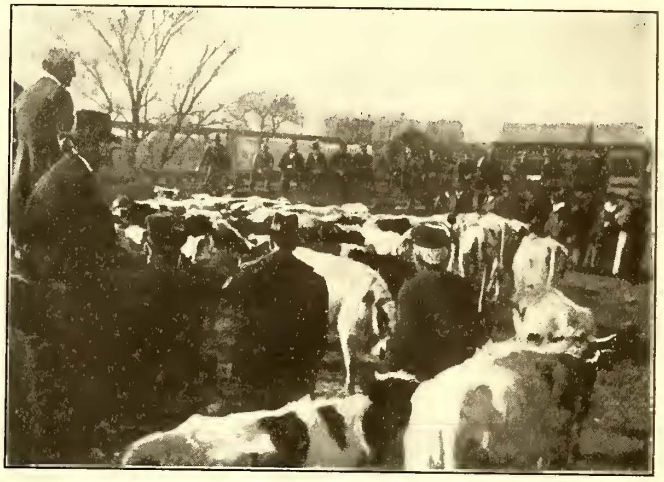
For the last two years we have made various efforts to interest the farmers in the growing of apples and small fruit, but until recently with little success. We find the farmers in Missouri have through generations been so accustomed to raising wheat, corn and livestock that it is difficult to interest them in fruit culture, or even in dairy farming. However, we now have two large commercial orchards along the line, and will have more as these develop. It so happens that the soil along the K. C., C. C. & St. J. Ry. has a deep layer of loess, which is the best-known soil for raising fruit, particularly apples, grapes and berries. A soil survey is being made under State supervision, and it is hoped that it will be completed this year in order to show the people along the line the value of the natural soil which has not been utilized heretofore for anything other than raising grains. When this survey is completed, a copy of the report will be furnished each of the landowners, and this should encourage the raising of fruits and vegetables, and materially increase the freight traffic on this road.

A New Scheme for Increasing Dairy Freight Traffic

A novel scheme for increasing the general interest in dairy farming which has been given considerable attention during the last six months is the organization of calf clubs at various points along the line. The calf club plan had never before been promoted by any railroad to my knowledge, but already two Western steam roads have taken up this subject after attendance at our meetings in this vicinity by their representatives. The plan, as it is being carried out here, had its inception in Illinois last year, where it was promoted by a few enterprising bankers, with the idea of obtaining better dairy cattle and more of them, and also of interesting and bringing the people's attention to that branch of farming. The results were so pleasing that bankers all over the State are now organizing calf clubs. More than 200 clubs have been organized since Jan. 1. Clubs that were organized last year returned gross profit of nearly 100 per cent, the one at Brighton, Ill., doing even better. Eighty-four boys and girls were furnished calves at an average price of $43 per head, and these were sold in the fall at an average price of $92.30. The calf club plan on this road was developed as follows:

Dairy meetings were held at various points along the line, and calf clubs were organized. The co-operation of the local banker is the first step in the organization of a club. The general plan is for the banker to buy heifer calves of a recognized dairy breed, and sell them to the farm boys and girls on time, taking their notes, guaranteed by their fathers or guardians. These graded heifer calves are sold to the boys and girls in the spring, with the understanding that late in the fall they are to be sold at public auction. From the proceeds of the sale the amounts of the notes with accrued interest and the expenses of running the club are to be deducted, and the balance goes to the boys and girls.

The services of Edward K. Slater, former dairy and food commissioner of Minnesota, now connected with the educational department of the Blue Valley Creamery Company, Chicago, who has been identified with the calf club promotion work in Illinois, were secured. He addressed various meetings and aroused great interest not only in the calf clubs but in dairying generally. Great difficulty is now being experienced, however, in securing the calves for the several clubs



AT THE CALF CLUB PUBLIC AUCTION IN THE FALL

organized. The interest of the whole community is aroused when a calf club is started. The boys and girls become more interested in the farm, and increased interest on their part means a new enthusiasm for dairying on the part of the parents. By becoming a member of a club, the child becomes the owner of property that he can call his own, and he takes a greater interest in the business end of farming. Great good is sure to result from the organization of these clubs. I quote from a letter written by a little girl who was a member of the Brighton Calf Club last year:

"I am glad I can join your calf club again this year, and glad that my two brothers can, too, because a boy cannot associate with a nice calf all summer without being a better boy."

In the year 1915 the Blue Valley Creamery Company shipped over this line 1399 cans of cream. In 1916 it shipped 1796 cans. This represents cream only, shipped to the one creamery. It is not necessary to tell the average railroad manager whether the handling of milk and cream on the road is profitable or not.

Freight Equipment and Service

The freight equipment on this road consists of five steel motor cars, five standard box cars and five flat and gondola cars, all used in local service. All interchange

freight is handled in foreign cars. This company does not supply any cars to the steam railroad. Two local freight trains each way daily are operated over each of the two divisions of this line, one a distance of 28 miles, between Kansas City and Excelsior Springs, and the other a distance of 52 miles, between Kansas City and St. Joseph. All carload movements are handled by the ordinary express car, so that the mileage is kept down to a minimum. At times when freight becomes congested it is handled at night, but this is a rare occurrence.

Below is a comparative statement of earnings, taken from the yearly report for 1916, showing earnings based on road-miles, car-miles, ton-miles, etc.

Car-Mile, Ton-Mile and Road-Mile Earnings

	Year 1916	Year 1915
Total miles of road operated	75.75	75.75
Total freight car-miles (trailer-miles inclusive)	130,317.49	129,593.96
Total tons handled	24,320.5	19,886.5
Total tons 1 mile	803,354	.....
Average gross revenue per ton	$2.888	$3.01
Average gross revenue per ton-mile	0.0873	.....
Average revenue per freight car-mile (gross)	$0.5388	$0.4622
Average revenue per mile of road (gross)	$926.94	$790.79

Comparative Earnings per Shipment

Number shipments forwarded	86,358	81,209
Gross revenue, forwarded	$70,215.97	$59,902.35
Average gross revenue per shipment	$0.8131	$0.7376
	$0.7376	
Difference	$0.0755	or 10 per cent increase

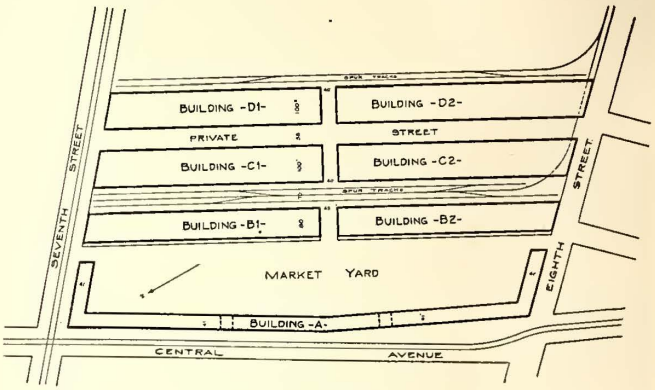
Bringing the Railway and Its Freight Customer Together

Los Angeles Union Terminal Company Is Now Building Fireproof Warehouses, in Which the City's Chief Wholesale Business Will Be Centered

FOLLOWING the example of the Bush Terminal Company, New York, and the Piedmont Lines, Charlotte, N. C., a company was recently formed at Los Angeles, Cal., to build a group of storage warehouses in the most favorable location for railway handling and distribution. This, the Los Angeles Union Terminal Company, is the largest project of its kind west of Chicago. It owns 19 acres of land in one parcel adjacent to the main lines of the Pacific Electric Railway and Southern Pacific Company in a fast-growing city, whose population already is around the half-million mark. This land is in the wholesale district, and only half a mile from the retail center, where the chief wholesale thoroughfare to-day has no trackage facilities whatsoever.

Character of Buildings

The first group of buildings now under construction comprises three six-story warehouses and three two-story market buildings, all of reinforced concrete. The latter buildings are peculiar to the local conditions, as

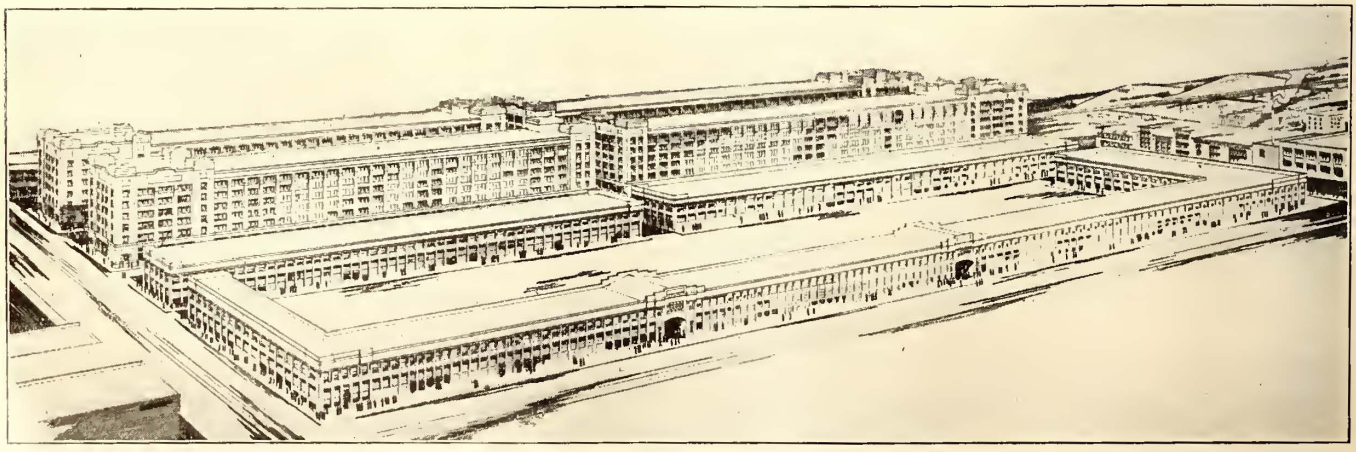


LOS ANGELES TERMINAL WAREHOUSES—PLAN OF BUILDING

they are designed to be utilized by the Los Angeles Public Market. Like the Bush Terminal Company's structures, which they resemble in many ways, the six-story buildings are of beam and girder type, built to obtain the lowest possible insurance rate. A rate of 15 cents per $100 is expected, as against rates up to $1.15 now paid by many of the future tenants. Wired glass is used wherever fire hazard exists, plain glass being used only where approved by the underwriters. Small subdivisions have hollow-tile partitions with gravity doors; subdivisions of 250 ft. or more have fire walls of 13-in. brick. As the latter walls are liable to be taken down in later years, brick was used in preference to concrete.

The six-story buildings are 612 ft. long by 100 ft. wide; two of the two-story buildings are 620 ft. x 80 ft.; while the market building is 1541 ft. x 40 ft. The latter structure contains 430,547 sq. ft. of floor area and the warehouses 1,770,000 sq. ft.

Through the courtesy of the Bush Terminal Company, advantage was taken of that company's experience wherever possible. The chief difference in the two projects is that the business done at Los Angeles is warehousing with but a small proportion of manufacturing lofts. Consequently, the service that is rendered is not as ex-



LOS ANGELES TERMINAL WAREHOUSES—ARCHITECTS DRAWING OF PROJECTED CONSTRUCTION

tensive as that supplied by the Bush Terminal to its tenants.

The layout of the first group of buildings and the architect's sketch are reproduced in two accompanying illustrations. From these it may be seen that switching and private tracks, as well as private streets, are provided to permit unloading directly into each building on the ground floor level. There is no switching charge. Chutes lead to the basements, while large electric elevators are provided either for general or private use, according to the nature of the lease. A crane will care for extra-heavy material.

Although the buildings were not scheduled for completion before Nov. 1, 1917, the company had rented on April 24 about two-thirds of the space to some sixty tenants. Most of these tenants are wholesale houses, which have grown so rapidly with Los Angeles that few have been able to expand at some one good location. Thus, one company which owned a building had been obliged also to rent an equal amount of space elsewhere. The terminal warehouse plan not only assures such concerns a low rental, excellent transportation facilities, and a fireproof home, but also enables them to concentrate their business. Furthermore, it is easier to provide for future growth.

The leases run from one month to fifty years, the larger concerns usually taking the longer leases. The amount and character of service, such as lighting, elevators, battery trucking, telpherage, etc., will be arranged in accordance with the wishes of the tenant, but of course these are details which will largely settle themselves with experience.

Strike and Union Agitation Fail in Denver

Employees Have a Brotherhood Organization, in Effect a Local Union—Faith in Their Own Ability to Look After Their Interests and Sense of Fairness They Feel Toward Company, Because of Voice Had in Its Affairs, Defeat Strong Attempt to Bring About Affiliation with Amalgamated Association

THE issue of ELECTRIC RAILWAY JOURNAL for March 31, 1917, carried a news report of the organization of a brotherhood of the Denver Tramway employees. The real significance of this organization was not evident to the casual reader at that time, and not until the developments of the last few weeks was the far-reaching influence of this brotherhood toward company loyalty disclosed. In these few weeks came the test and the proof of the principles on which the organization was built up. The chronicle of events during this period tells the story.

After weeks and weeks of the most determined effort on the part of union organizers or trouble agitators (call them what you will), direct from the Detroit headquarters of the Amalgamated Association of Street and Electric Railway Employees to establish a footing for an affiliated chapter of the national union, the interest of a few men from the 700 or more trainmen was enlisted. These few delegated, without authority, a committee of five men to present the demands of the Denver Union, No. 746, boldly heralded as having been organized, to General Manager Frederic W. Hild. This committee was received by Mr. Hild on June 4, while the newspapers were filled with the news of a threatened strike. An agreement was tendered to the company covering a period of one year and providing for a raise of wages from the present maximum of 31 cents to a new maximum of 40 cents an hour for trainmen and a 20 per cent increase for carhouse, shop and track men. It also provided for recognition of the union and strongly hinted that unless Mr. Hild gave answer by 9 o'clock the next morning a walkout would result immediately. Then witness the statement signed by this same committee in the morning papers June 5:

> We, the undersigned committee appointed to represent the Amalgamated Association of Street and Electric Railway Employees, find that matters are not as represented and hereby advise our fellow workmen and trainmen not to attend any meetings called for the purpose of organization, but we do believe that all these matters can best be handled through our own brotherhood. We have resigned from the committee.

Then witness further the set of resolutions adopted at a meeting of the local brotherhood, attended by 450 employees on June 5, expressing loyalty to their own organization and repudiating the acts of the committee which represented the Amalgamated Association:

> Whereas, a committee claiming to represent the employees of the Denver Tramway Company waited upon F. W. Hild, general manager of said company, on June 4, 1917, and at said time submitted a set of demands upon the tramway company, signed by said committee, and outsiders having no connection whatever with the tramway company,
>
> And, Whereas, the said committee was not authorized to represent the employees of the tramway company or the members of the tramway brotherhood:
>
> Now, therefore, Be it Resolved by the trustees and members of the Tramway Brotherhood of Denver, Col., all employees of the Denver Tramway Company, in this meeting assembled, that the aforesaid action of this committee was entirely without warrant or authority.
>
> Further Resolved, that we do hereby reaffirm our allegiance to said brotherhood and particularly the purposes and objects thereof as set forth in Article 1 of the by-laws, as follows:
>
> Section 1. Recognizing, as citizens, that duty to the community of Denver and vicinity, and as employees, that obligations to the Denver Tramway system require that the transportation service rendered by the Denver Tramway Company shall be safe, continuous and reliable, and that frank, friendly meetings and intercourse between employees and officials are the best means of promoting harmony of effort and preventing and removing possible misunderstandings,
>
> And believing and being convinced that the employees of the Denver Tramway system have sufficient ability and business judgment to manage their own affairs, and represent and look after their own interests, without interference by or affiliation with any other individual or organization, and, furthermore, that these objects and purposes can be best pursued and accomplished by mutual co-operation and conference between employees and officials. * * *
>
> Section 2. The basic principles of this brotherhood are:
>
> First—Mutual and helpful co-operation by and among all the employees, the officials and the management of the Denver Tramway Company and its affiliated companies.
>
> Second—That the individual members of this brotherhood, each for himself, and upon his honor as a man, and attested by his signature, agrees to carry out and further the above and foregoing principles.
>
> Further Resolved, that we believe the members of said committee acted under a misapprehension of the facts, and we hereby approve their resignation from said committee.
>
> Further Resolved, that a copy of these resolutions be sent to the Denver Tramway Company and the press of the city.

When these resolutions had been passed reassuring Mr. Hild of the good faith of his employees, he suggested that a committee be appointed to take up the matter of wages and working hours with the management in accord with the routine provided in the constitution and by-laws of the brotherhood. Thus was the aid of an outside, unsympathetic, selfish body rejected and Mr. Hild's persistent faith in the fairness of his employees reaffirmed.

Developing the Denver Brotherhood

With the above recitation of events as the proof of the course the Denver Tramway Company has taken to gain the lasting confidence of its employees and thus avoid strikes and all the contingent discomforts to company and public, the nature of the organization, its aims, its benefits, its accomplishments, will be of interest. In passing, it is only fair to point out that not all of the road to amicable relations was traveled under the direction of the present management, but rather, that the former management handed down a group of loyal men and a very good feeling between company and employees as a basis for Mr. Hild's further work. There was formerly an organization of the trainmen only known as the Tramway Mutual Aid Association which offered certain sickness, death, pension and hospital benefits. This organization was controlled by the company, although the employees were represented on the board of trustees.

Mr. Hild sensed the need not long after he took charge of the property for an organization which would comprise all the employees of the company and would be controlled by them, the management having a minority representation on the board of trustees. He had in mind an organization of such a nature that it would in effect be a local union of the employees, yet be more to their advantage than affiliation with any national labor union would be. It would give every employee a voice in the conduct of those company affairs pertinent to the employees, and in this his principal object was to make the men feel that they had a perfect right to voice their opinions and then to provide a place for this discourse to meet with official recognition. Mr. Hild has a very firm conviction that with proper guidance, employees can be counted upon to be absolutely fair in their dealing with the company and that the more confidence there is placed in them, the less trouble there will be. Hence he was entirely willing to provide a common meeting ground for company and employees, and then welcome and encourage a free expression of the thoughts of the men—an assembly popular in both senses of the word. Such an arrangement takes away all the argument for membership in a labor union, and this was openly expressed as one of the motives for the organization of the company brotherhood.

So, with the Tramway Mutual Aid Association as the ground work for the new organization, a rough draft of the by-laws of the proposed brotherhood designed to supplant the Mutual Aid Association was laid before the trustees of the T. M. A. A. who circulated copies of the proposed new by-laws among the men. Then, after some four months of more or less discussion, the trustees of the Mutual Aid Association took up the matter for final action. A voluntary advisory committee of twenty employees from all departments of the company was called in and the by-laws gone over point by point, thoroughly studied and discussed, and thus was evolved in final form the existing by-laws of the present Tramway Brotherhood of Denver. These men, through their participation in the detailed discussion, were enabled to

TO ALL TRAMWAY EMPLOYEES:

Some four months ago the management, after careful study of the T. M. A. A., the Hospital Fund and the Pension System, submitted to the Board of Trustees a number of proposed changes in the T. M. A. A. and the Hospital Fund. This found expression in the proposed By-Laws and Agreement of The Tramway Brotherhood, copies of which were circulated among the trainmen for suggestions and criticisms. Much favorable comment and many valuable suggestions were made, and finally on Tuesday evening, March 6th, the Trustees of the T. M. A. A. undertook to act on the proposed changes. Feeling their responsibility and wishing the further advice and suggestions of their fellow employees, they invited to the Board meeting the following employees:

TRANSPORTATION DEPARTMENT
North: M. N. Heizer, W. J. O'Brien, J. Colestine.
East: G. E. Ames, H. M. Lee, E. A. Bodie.
South: A. J. Ronveaux, H. B. Griffin, J. W. Cornmesser.
Central: J. C. Adam, G. J. Griffin, F. D. Haney

ENGINEERING DEPARTMENT
W. L. Whitlock, Swan Anderson, R. Sparks, Chas. Loader, H. W. Webb.

MECHANICAL DEPARTMENT
John Paul, L. E. Bodfish.

Free discussion resulted in many further suggestions, and finally, on the unanimous recommendation of the voluntary advisory committee, the Board unanimously voted for the change and the adoption of the By-Laws for the Tramway Brotherhood of Denver and the new agreement with the Tramway Company.

Every Employee is urged to sign the Membership Roll.

(Signed) FRANK DAVIS, Chairman
JOHN GOLDSWORTHY
C. M. HOLDER
JOHN CONWAY

COMPARISON

UNDER THE TRAMWAY MUTUAL AID ASSOCIATION	UNDER THE TRAMWAY BROTHERHOOD
1. MEMBERSHIP	
Only part of employees belong	All employees will become members
2. MEDICAL AND HOSPITAL SERVICE	
Not part of T. M. A. A. Supervised only by Tramway Company	Given to all Brotherhood members and supervised by Trustees
3. BOARD OF NINE TRUSTEES	
Four elected by men Five appointed by Company	Seven elected by men Two appointed by Company
4. DUES	
Exactly the same under both plans	Exactly the same under both plans
5. INSURANCE BENEFITS WHEN SICK	
$6.00 per week, 1st Class $4.50 per week, 2nd Class $3.00 per week, 3rd Class	$10.00 per week, 1st Class $ 7.50 per week, 2nd Class $ 5.00 per week, 3rd Class
6. DURATION OF BENEFITS	
Limited to 104 weeks	104 weeks. Unlimited for employees 10 years or more in service in exceptional and worthy cases
7. COMMENCEMENT OF SICK BENEFITS	
Begin 10 days after disability	Begin immediately if sickness lasts 14 days or more, otherwise begins 7 days after disability
8. DEATH BENEFITS	
Exactly the same Paid by T. M. A. A.	Exactly the same Paid by Tramway Company, leaving all funds of Brotherhood for Hospital and Medical and Sick Benefits
9. MEETINGS	
No meetings of members Only meetings of Trustees	Monthly meetings of Members as well as of Trustees

NOTE: T. M. A. A. members now in good standing will be transferred to Brotherhood without Medical Examination and without change of death benefit insurance.

POSTER ANNOUNCING ESTABLISHMENT OF BROTHERHOOD

go out and talk intelligently about the new association among their fellow employees. In the same manner, the plan was explained to employees of other departments, and in his talks with the men Mr. Hild very plainly said that the plan was directly opposed to affiliation with other labor unions or dictation or interference by outside organizers as is evidenced in the opening section of the by-laws of the brotherhood and quoted in an earlier paragraph in the resolutions passed by the men in repudiation of the recent work of the amalgamated association in Denver. By his very frankness of speech he won the confidence of the men that there was no "nigger in the wood pile," but that the idea was simply to provide the employees with all the advantages of membership in a labor union and more but retain to the company the privilege of dealing directly with its own employees in any matters of difference instead of being forced to negotiate through the medium of a national organization very remotely interested in the success of the company as a business enterprise.

Finally, a petition, which simply obligated the men to later join the brotherhood and adhere to the by-laws governing the association and to recognize and submit to the change from the Mutual Aid Association to the brotherhood, was sent to each division of the transportation and to all other departments for the men to sign. Posters placed in the division headquarters and in various offices over the property, and reproduced herewith, set forth the principal points of comparison of the two organizations and showed conclusively the advantages offered the employees in the new association. Within forty-eight hours after the petitions were sent out, 98.5 per cent of the employees had signed. Of the remainder 1 per cent were out of the city and signed later upon their return, and twelve men refused to sign, having reasons of their own which they refused to express. A significant thing is the fact that not a single trainman refused to sign. With this acceptance of the plan, its formal adoption was made on April 26, when officers were installed and the board of trustees elected.

ORGANIZATION AND OPERATION OF THE BROTHERHOOD

The object of the brotherhood as set forth in its by-laws are threefold: The first is to provide for the relief of its members in case of sickness, injury or disability and to provide benefit in the event of death; the second is to promote social relations and good fellowship among the members and to secure such business benefits for its members as may be attained by co-operation and conference between employees and officials; and the third is to aid in the education of its members in all matters pertaining to a general knowledge of street and electric railways, their equipment and operation, and to promote the best conduct of the business of the Denver Tramway Company for the mutual advantage of the tramway brotherhood and the company.

Every employee of the company, regardless of department or rank, is included in the membership of the brotherhood as long as he remains an employee and pays the dues provided in the by-laws. Before being entitled to any benefit of the organization, all members are required to subscribe to the membership roll and agree to support the by-laws of the organization.

The management of the brotherhood is vested in a board of trustees consisting of nine members, of whom four are elected from the transportation department, giving a representative from each of the four divisions, one member from the mechanical department, one member from the ways and structures division of the engineering department, one member from the power department, and the president and treasurer of the brotherhood. The general manager of the tramway company is *ex-officio* president of the brotherhood, while the auditor holds the office of treasurer in like manner. The seven trustees representing the various departments of the company are elected through the process of primary and regular election, for periods of two years. This arrangement gives a popular representation on the board of trustees of four representatives for approximately 1000 transportation department men and three representatives for the 650 men in other departments.

The board of trustees holds at least one regular meeting each month, and each board member is paid the sum of $1 for attendance at the regular meeting. A monthly meeting of the entire membership of the brotherhood is held, and it has been the intention to concentrate all activities of the employees in this one meeting, in the hope that by reducing the number of meetings the interest would be increased in the one. The programs at the brotherhood meetings are, therefore, made to include all phases of the company activities, including the A. E. R. A. company section technical papers, social activities, safety discussions, and the business meeting of the brotherhood at which the discussion of any grievances is encouraged.

BENEFITS AND COSTS

Membership in the brotherhood requires participation in the medical, surgical and hospital benefits, and all employees are required to pass a physical examination before being accepted. The dues for medical, surgical and hospital service are 50 cents a month for all members. For insurance benefit against sickness, injury or disability, the dues are $1 a month for members whose average monthly earnings are $80 or more, 75 cents a month for those whose average monthly earning is between $60 and $80, and 50 cents per month for members whose average monthly earning is less than $60. These dues entitle a member to a benefit of $10, $7.50 and $5 per week respectively for the three classes, extended over a period of time as shown in the poster reproduced on page 8. Death benefits of $1,000, $750 and $500 for the three classes respectively are carried by the company for the benefit of the members of the brotherhood. When death benefits are due the payments are made by the company into the treasury of the brotherhood, which in turn disburses these mortuary funds to the beneficiaries. Providing he has passed the prescribed medical examination, a man is accepted for insurance as soon as he is hired by the company. When payment of pensions to employees is made it is accepted in place of insurance and death benefits and releases the company and the brotherhood from all other obligations. Pensioned employees, however, are entitled to medical, surgical and hospital service, provided they continue to pay dues into the brotherhood during the time they are pensioned.

The collection of dues is made by the company for the brotherhood without charge by deducting the amount from the pay checks of all those employees who are paid regularly by check. The trainmen pay voluntarily out of their own pocket the amount of the dues between the first and fifteenth of each month.

NEW MELBOURNE TRAMWAY—METHOD ADOPTED FOR POLE ERECTION, AND VIEW SHOWING SUBSTRUCTURE AND SUBSOIL DRAIN FOR TRACK

A Recent Australian Tramway

This New Australian Electric Line Includes 12 Miles of Track Laid with 90-Lb. Rail on Hewn Ties—Standard Span-Wire Construction Has Been Installed for the Contact System, and the Cars Are Similar to the California Type Used on the Pacific Coast

By STRUAN ROBERTSON, Assoc. Mem. Inst. C. E.
Engineer and Manager Melbourne, Brunswick & Coburg Tramways

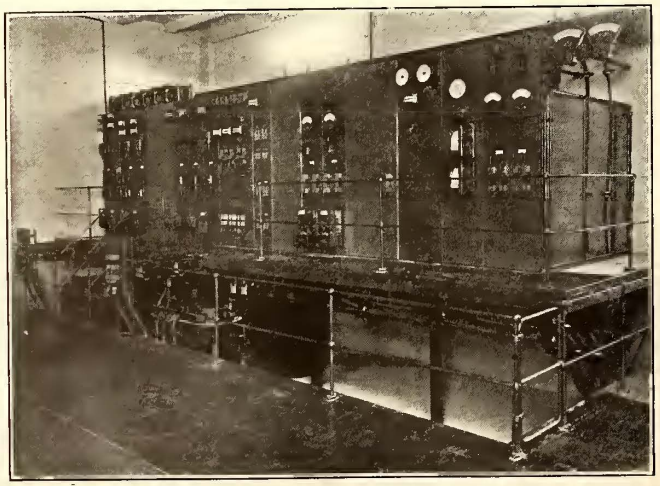
THE new Melbourne, Brunswick & Coburg Electric Tramway is the most recent example of Australia's semi-suburban electric railways. Melbourne, with its suburbs, has a population of roughly 600,000 people, but there is no central municipal control, since it is cut up into several small cities, towns and boroughs, and each of these has its municipal affairs controlled by its own elected council. The system of control adopted for new projects has by an act of Parliament been constituted a tramways trust, whose members are elected by the municipalities concerned. The tramways have been constructed and are being operated under these controls in the interests of their constituent bodies. The capital for construction was obtained by loans advanced on the securities of the various municipalities concerned.

The new tramway has a total route of 7 miles, of which 5 miles are double-track and 2 miles single-track, making 12 track-miles in all.

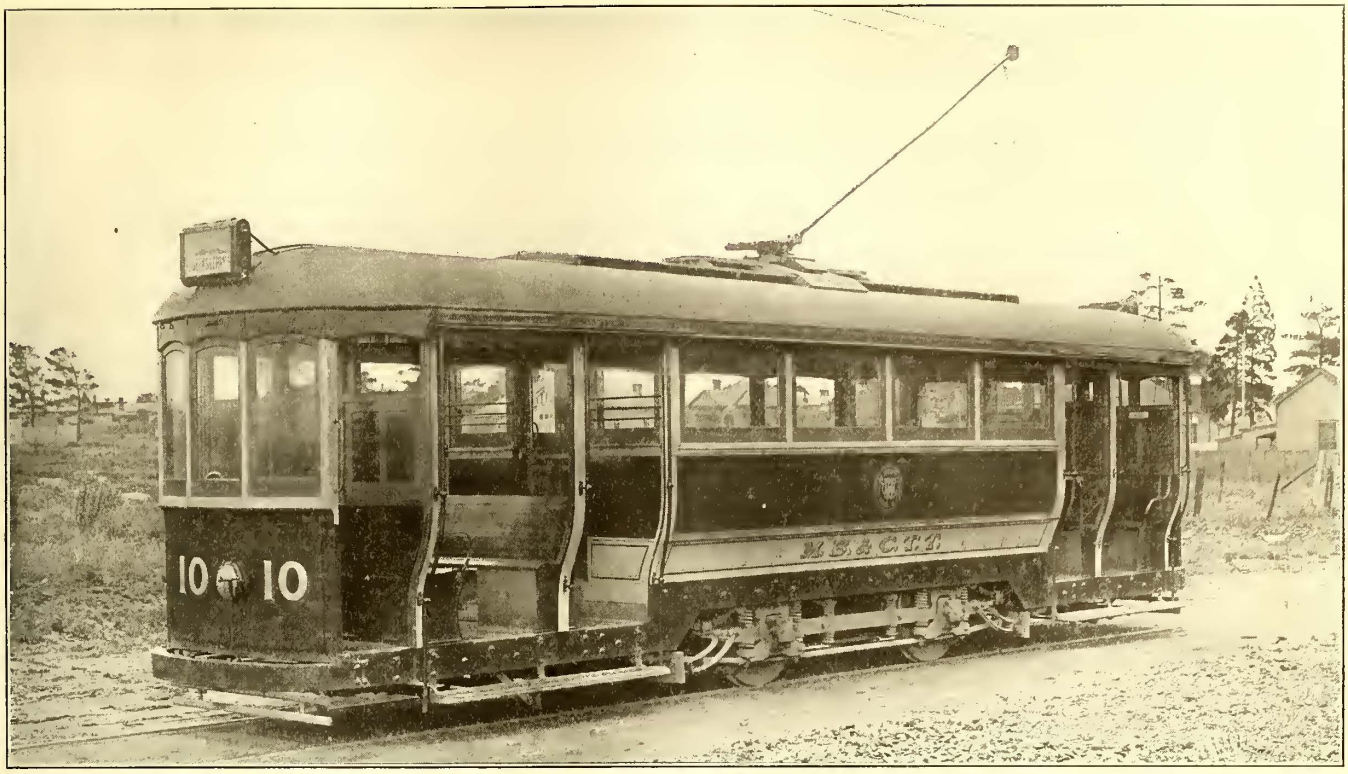
The permanent way construction has several special features that are unusual in Australasian construction. Among these is the use of a subsoil drain of agricultural tiles with frequent outfalls. This has been provided for the full length of tracks. In addition, an 8-in. depth of graded ballast has been used below the ties. For pavement of the roadway adjoining the rails a "gilsonite" asphaltic-concrete surfacing has been adopted, vitrified bricks being installed against the rails to prevent the asphalt surface from being broken down along the line of contact between the rail metal and the paving.

The rails weigh 90 lb. to the yard, and they are British standard, grooved-girder section on tangent track. A similar type of rail weighing 96 lb. to the yard is used on all curves of less than 150 ft. radius. The rail heads are curved with a radius of 12 in. The sharpest curves on the system are of 50 ft. radius. On curves of 60 ft. radius or less the inside rail is fitted with a removable, rolled manganese-steel flange. All rails are made of silicon steel, under the Sandberg patents.

For the ties native hardwoods, *i.e.*, red gum, iron bark and gray box are used. All ties are hewn and they are spaced on 27-in. centers. It is expected that the ties will have thirty years of life.



NEW MELBOURNE TRAMWAY—VIEW OF SUBSTATION SWITCHBOARD



NEW MELBOURNE TRAMWAY—COMBINED OPEN AND CLOSED CAR

No tie bars or brace plates are used, and the heaviest axle load is not more than 8 tons.

Overhead construction is of side-pole span type. Steel poles are used throughout 5 miles of the route, and native iron-bark poles, neatly dressed, on the other 2 miles of the route. Non-fouling trolley wire with mechanical ears has been adopted.

A 5000-volt, three-phase, 50-cycle current supply is purchased from the electric supply department of the Melbourne City Council. Payment is made on a maximum demand system at a price which works out to approximately 2 cents per alternating-current unit delivered. The tramway has installed its own substation, which is equipped with two 200-kw. rotary converter sets, a 50-kw. general service power and lighting transformer and two 10-kw. series transformers for track lighting, the whole being controlled from a handsome black-slate switchboard. All the substation equipment has been supplied by the Australian General Electric Company, Ltd., Melbourne, representing the General Electric Company, New York. Space has been provided for increasing the capacity of the substation to 1600 kw.

NEW MELBOURNE TRAMWAY—VIEW SHOWING DEPOT YARD, OFFICE BUILDING AND CAR STORAGE

for traction purposes when the growth of traffic makes this necessary.

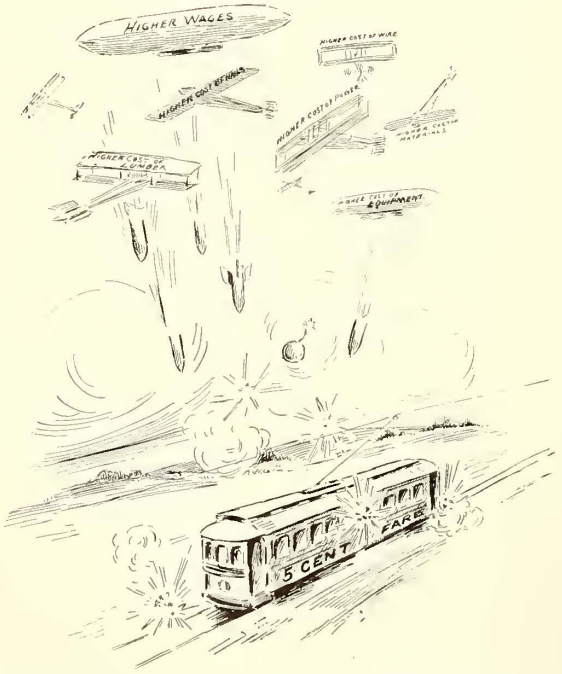
At present there are twelve cars in service. These are mounted on single trucks of the Brill 21-E type, having 7-ft. rigid wheelbase and 33 in. rolled-steel wheels. The car bodies were manufactured in Australia and are of the combination saloon and open type, having a seating capacity of forty-four. The over-all length is 35 ft., and the weight is 23,500 lb. Each car is equipped with two GE-241 box-frame motors rated at 55 hp. This motor capacity enables the car to maintain with five stops per mile a schedule speed of 12 m.p.h. Other features of the equipment are form K controllers and GE straight-air brakes. These cars are the first street railway equipments in Melbourne to be fitted with pneumatic brake equipment.

One carhouse serves the entire property. This includes under one roof storage for twenty cars, a workshop fitted with a 200-ton wheel press, a wheel lathe, an 8-in. lathe, a radial drill press, a sensitive drill, an emery and buffing wheel, and a wet emery stone. All of these tools have individual direct motor drives from three-phase, 50-cycle, 415-volt induction motors. The same building contains the substation, store, offices for staff and a messroom for the men. The complete installation, which was designed by and constructed under the supervision of the writer, was completed and placed in regular service on Oct. 28, 1916.

A Cartoon Summarizing Current Conditions

The accompanying drawing, made for this paper by John F. Burroughs of Baltimore, Md., tells its own story.

As the readers of the Electric Railway Journal know full well, the line which must operate on a 5-cent



HOW MUCH LONGER CAN A 5-CENT FARE LINE SURVIVE?

fare is pitilessly bombarded by rising wages and costs of materials, well typified, as the artist has done here, by the dirigible and the airplane raining destruction from the clouds.

The Librarian's Real Duties

President Brush Outlines the Value of a Company Library and Competent Librarian to the Executive and His Staff

In a comprehensive address delivered on June 25 by Matthew C. Brush, president of the Boston (Mass.) Elevated Railway, before the Special Libraries Association at Louisville, the importance of the duties of the so-called librarian, properly executed, were pointed out. The address appears in full in the June issue of *Special Libraries*, published by the association. It may be said here that the Boston Elevated Railway has an extensive and up-to-date library, and President Brush is no doubt in a position to speak of its possibilities as an efficient information bureau. In his opinion, the employees of the company must necesarily depend on the librarian to make readily available to them such information as pertains to their business, and they should be made to feel that such material will be placed at their command. They should be made to feel further that instead of supplying information as a favor, the librarian is always glad to be of assistance; that he welcomes the inquiry of an office boy as well as the perplexing questions of an expert, and that he will continue to work in their behalf when once he knows their wants.

To all the different members of the staff of the company the librarian can be no less helpful, provided his familiarity with the business is broad enough to enable him to look at it from different points of view and understand, to some extent at least, the problems of each official. His particular duty should be to acquaint himself with the needs of the staff and to bring to their attention new articles of interest of which it has been his opportunity to learn. The staff should feel that they can confide in the librarian many details regarding their problems in order that the latter can work advantageously in securing desired information. To this end he, having knowledge of the lack of material on certain subjects, should co-operate with the editors of periodicals in order to remedy the condition. Moreover, with a knowledge of the needs of the staff he would be much more able to detect articles bearing upon the business of the company, which would otherwise appear to be of no interest.

The librarian can do much, Mr. Brush said, to lighten the work of an executive, who would thereby have more time to give to his greater responsibilities. In so doing, information should be presented in a form digested or abstracted so that it could be grasped by the executive with the greatest economy of time. The librarian can even recommend to his company ideas which he notes from his reading have been successfully applied by other concerns. The importance of this service was expressed by Mr. Brush in the following statement:

"In fact, the so-called librarian can build a place for himself in every firm, corporation or company, if he desires to do so, and if he possesses an intimate acquaintance with the various methods of getting information aside from books, periodicals, pamphlets, etc., standing as he should at the elbow of an executive, demonstrating his ability to advise how various matters have been viewed by different minds and reporting why certain schemes were a success or failure, it would seem as if a more fitting title could be thought of for him than that of librarian."

Insulator and Cable Problems Discussed by A. I. E. E.

At a Business Session of the American Institute of Electrical Engineers Held in New York on June 27 and 28 Insulator Deterioration and Cable Heating Were Among the Topics Taken Up

A BRIEF business convention of the American Institute of Electrical Engineers this year took the place of the regular annual convention which had been scheduled to be held at Hot Springs, Va., during the latter part of June. The meeting was held in New York and consisted of two days of reading of papers and discussions on a list of topics of limited range.

There was no session devoted to electric railways, but a number of the papers contained much of value to those responsible for the power end of the electric railway business. Among these were a group of four papers on high-tension cables, and another group of three papers on high-tension insulators. A number of the salient points in the papers and the discussions which may be of interest and value to electric railway men are summarized below.

> "The rapid development of the art has rendered much transmission apparatus obsolete, and the insulator is by no means an exception. When in addition to this, we take into consideration that little is generally known even at the present time as to the conditions under which the insulator has to operate and the necessary properties in same to withstand these conditions, it is surprising that the insulator has reached its present state of perfection."
>
> —A. O. AUSTIN

> "The continued and seriously high rate of deterioration occurring in all parts of the country in high-voltage suspension insulators of the cap and stud type, has caused investigators in their efforts toward the design of a durable insulator, to make a more careful study of the problem than heretofore. * * * In view of the number of factors involved * * * it is not only natural, but in fact a favorable sign of active and thorough investigation, that somewhat different views may at first be held as to the predominating causes of insulator deterioration by those engaged in making such studies."
>
> —J. A. BRUNDIGE

DETERIORATION OF HIGH-TENSION INSULATORS

The three papers on the subject of high-tension insulators covered largely the same trouble, namely, insulator deterioration. That was the subject of one by J. A. Brundige, Electric Bond & Share Company, who discussed particularly expansion effects as a cause of deterioration. The engineers of this company have arrived at the belief that expansion effects are causing the major part of insulator deterioration. Expansion in the steel studs on hot days is doubtless responsible for much of the trouble. Expansion also takes place inside insulator caps where Portland cement has been used for assembling. Such expansion in cement was clearly indicated in some experiments cited by the authors where numerous hair cracks were found to have developed throughout the mass of cement briquettes due to expansion and contraction under varying moisture conditions.

As evidence confirming Mr. Brundige's contention, he called attention to the following facts: No evidence of importance is at hand showing that electrical stresses have caused deterioration. In general, losses of insulators in service do not bear any apparent relation to the degree of firing of the porcelain. Deterioration appears to take place quickly and, as slightly porous wear absorbs moisture only slowly, large numbers of insulators would undoubtedly have been discovered in the intermediate resistance stages if porosity were the predominating cause of failure. Cracks of more or less long standing have been identified in the majority of cases where it has been possible to carry on post-mortem examinations on defective insulator units. The relatively good showing made by some earlier types of insulators indicate that porosity is not the factor of most immediate concern.

QUARTZ SUGGESTED AS SUBSTITUTE FOR PORCELAIN

The general insulator situation was summed up by W. D. Peaslee, consulting engineer, Portland, Ore., who believed that four factors are of predominant importance in connection with deterioration, as follows: Mechanical stresses due to temperature changes and moisture; dielectric flux concentration due to improper design and to defects in the porcelain; dielectric flux concentration due to the non-homogeneous character of the porcelain, and mechanical stresses due to differences in coefficients of expansion of the constituents of the porcelain itself. He called attention to the fact that deterioration may take place independently of electrical stresses, quoting an example from the Pacific Coast where the percentage of deterioration in a lot of several hundred insulators, left over from line construction and remaining in the original crates, was practically the same as that occurring in the ones in service. The crates were of the usual open type and had been stored in a yard for a period of approximately four years.

In Mr. Peaslee's opinion the porcelain insulator as commercially available to-day is not a success in that it is deteriorating too rapidly both in and out of use. To overcome the defects there must be a correct appreciation of the mechanism of breakdown and the application of direct principles of electric flux distribution. He finds that quartz has many advantages for insulator manufacture, and he is experimenting to eliminate the difficulties in the way of making satisfactory commercial quartz insulators.

In another paper in which present practice in the design and manufacture of high-tension insulators was

described by A. O. Austin, chief engineer Ohio Insulator Company, the statement was made that under the conditions of development of the high-tension insulator it is surprising that it has reached the present state of perfection. However, the very nature of the dielectric, the necessarily low cost due to the large number of insulators required, and the many hazards to which insulators are subjected in operation give us no right to expect that a line can be equipped with insulators which have absolutely no depreciation.

The cracking of insulators is by far the most serious cause of depreciation on most lines. Examination of many insulators which have cracked on the line indicates that the largest and apparently strongest insulators crack soonest, and also that the size, shape and number of the cemented joints affect the cracking. Much effort has been expended to incorporate in the modern type insulator a few strong parts, small heads with corresponding cement sections and areas, minimum amount of nesting permissible with mechanical reliability and elasticity in the joints. The last-named item was considered by Mr. Austin to be of great importance, and he stated as the requirements for a satisfactory insulator joint that there must be a minimum area for a given grip, an absence of slipping, and an elastic yield or ability to distribute a heavy load. A coated sanded surface fulfills these requirements to a marked degree. In conclusion, he insisted, among other things, that the abnormally low depreciation and successful performance of well-insulated lines under the severest conditions show that the modern insulator is very successful compared to the earlier products. For old lines it is well to consider the hazard increasing with time due to an increasing rate of depreciation. To maintain a given standard of performance it is then necessary either to split up the system into smaller sections as the line becomes older or to go over the line at decreasing intervals of time to remove the faulty material.

Discussion on Insulators

Comment on the above papers brought out a number of practical points from the operator's standpoint. For example, it was shown that while a broken unit in a multiple-part insulator may not ruin it electrically it may do so mechanically, hence cracking is a doubly serious matter. Another point was that while seasonal changes have a tendency to cause deterioration in cap and stud units this need not result especially with newer units. There was some debate as to the merits of two-part versus three-part insulators, it being held that while the relative effect of the loss of one part is greater with the former than the latter, to offset this there is greater reliability throughout in the insulator with fewer parts. There was general agreement on the desirability of weeding out weak insulators in securing economical maintenance. In reference to the proposed quartz insulator, one speaker said that, while quartz will withstand heavy arcing and will not crack under sudden cooling from water, it may become brittle at 150 to 200 deg. Fahr.

High-Tension Cable Problems

In the opinion of John L. Harper, chief engineer, Hydraulic Power Company, Niagara Falls, N. Y., as expressed in a paper, the present abnormally high cost of underground cables renders it unusually necessary for operating engineers to devise ways and means for working present cable installations to a capacity much greater than they were supposed to have. From his paper one may infer that he thinks it is to be done through having full knowledge of the causes of cable failures. These failures he attributes to poor joints, mechanical abrasion and overheating. The joints may be poor due to improper workmanship or to the use of a joint-filling compound that has not the same characteristics as the insulating compound used in the cable itself. Experience and practice are necessary to insure well-made joints, and manufacturers can supply suitable joint-filling compounds if requested. There seems to be no cure for the evils of mechanical abrasion of lead sheath except to let nature take its course.

In order to increase the capacity of cables without overheating, Mr. Harper suggests, for new and permanent construction, provision for dissipating heat by water, if possible so constructing conduit systems that the ducts can be flooded and cables operated under practically submarine conditions. By this means the carrying capacities of underground cables could be made nearly to approach those of bare aerial conductors.

On the same general subject as that covered by Mr. Harper were the specifications for making cable joints for voltages from 10,000 and upward as presented by D. W. Roper, superintendent of street department, Commonwealth Edison Company, Chicago, Ill. He recommended in particular the following points: Liberal cutting back of the sheath to prevent injury to the insulation during the making of the joint. The use of copper splicing sleeves of liberal cross-sectional area, at least equal to that of the conductor, and of a length about four times the diameter of the conductors. The elimination of sharp points and edges in the splicing sleeve. The use of solid insulation to hold the conductors in fixed positions, and of filling compound of suitable dielectric strength not materially affected at the maximum operating temperature; this compound to be non-hygroscopic, free from tendency to form cracks in cooling or in cold weather, sufficiently fluid to flow into all air spaces before becoming chilled, and capable of removal without injury to insulation, and not having an excessive coefficient of expansion. Application of insulation and compound in such a way as to prevent the formation of air pockets or voids. Careful exclusion of all moisture. The use of care to prevent compound from running back into cable at high temperature if compound with low-melting point is used. Suitable identification of the joint as to the workman making it. Safeguarding the joint from mechanical injury.

The results of some tests on dielectric losses in high-tension cables were given by two testing engineers, A. F. Bang and H. D. Louis, who are connected with electric power companies. They studied the losses in several samples of cable installed in a special testing conduit and subjected to temperature from normal up to very high values. They showed how, by plotting curves, between watts loss per foot and temperature, representing both the heat-dissipating capacity of the conduit and the dielectric losses in the cable, it is possible to calculate the allowable copper loss and hence the operating capacity of the cable.

W. S. Clark and G. B. Shanklin, of the General Electric Company, Schenectady, N. Y., gave the results of elaborate tests on insulation characteristics of high-volt-

age cables, directing attention to the fact that practically all failures on such cables can be attributed to heating. This heating occurs at certain "hot spots," which particularly are effective in limiting the allowable current in the cable because of the rapid rise of dielectric loss with temperature and its cumulative tendency at high temperature. The tests made by Messrs. Bang and Shanklin yielded a vast collection of data which are available to cable experts.

Naturally a salient point in the discussion on cables was that raised by the suggestion of artificial cooling. The objections to flooding ducts were that the manholes must be pumped out for making repairs, there is increased danger of electrolysis, and water containing much air is apt to cause rapid oxidation. The intelligent forcing of cables was recommended although attention was also directed to the fact that some cable trouble is caused by use under conditions not originally contemplated. Another point emphasized by one of the speakers was the importance of radiation from the ducts which should be so constructed as not to impede radiation.

Fare Increases Already Granted

Sixty-Seven Companies Have Obtained Permission to Raise Rates Since 1914—Massachusetts, Where Capitalization Has Long Been Under State Control, Leads in Important Cases—Municipal Lines Are Included

THE bureau of information of the American Electric Railway Association has prepared a list of electric railways which have obtained fare increases of some sort since the year 1914. Twenty-one States and the Dominion of Canada are represented. In all, sixty-seven cases are cited in which fares have actually been raised. The bureau has endeavored to include all increases up to June 1, 1917.

An interesting feature of the list is the fact that more important fare increases have been granted in Massachusetts than in any other division in the list. This is an effective answer to those who claim that the necessity for increased revenue arises largely from overcapitalization, since in Massachusetts the issuance of securities by public utilities has been under the supervision of the State authorities for more than thirty years. Hence in this State, at least, there is very little complaint of watered stock.

It will be noticed that the Canadian list includes three municipally owned lines, which seem to have no better means of escaping consequences of increased costs of production than the privately owned enterprises.

The list as compiled by the association, showing the references from the ELECTRIC RAILWAY JOURNAL, follows:

ARKANSAS

Fort Smith Light & Traction Company, Fort Smith, Ark.:

OCTOBER, 1915—The company announced discontinuance of practice of selling twenty-five tickets for $1. (E. R. J., Vol. 46, 931.)

CALIFORNIA

Glendale & Eagle Rock Railway, Glendale, Cal.:

MARCH, 1914—Application made for permission to discontinue sale of twenty-ride commutation tickets at 50 cents and to substitute in lieu a regular fare of 5 cents. (E. R. J., Vol. 43, 611.)

MAY, 1914—Application granted by California Railroad Commission (order not applicable to children under eighteen years of age). (E. R. J., Vol. 43, 1012.)

Los Angeles (Cal.) Railway:

APRIL, 1915—District Court of Appeals upheld the right of the company to charge 10-cent fares from city to Eagle Rock, etc. (E. R. J., Vol. 45, 777.)

San Diego & Southeastern Railway, San Diego, Cal.:

JANUARY, 1916—Application of company for an increase in freight and passenger rates approved by California Railroad Commission. One-way fare between Third Street and city limits to remain 5 cents. (E. R. J., Vol. 47, 104.)

San Francisco, Napa & Calistoga Railway, Napa, Cal.:

MAY, 1917—Authorized by California Railroad Commission to increase monthly commutation rate between Napa and Vallejo from $5 to $6. (E. R. J., Vol. 49, 937.)

CONNECTICUT

Bridgeport & Danbury Electric Railway, Bridgeport, Conn.:

OCTOBER, 1916—Announcement that company operating a line between Bridgeport and Longhill will hereafter constitute its line into two fare-zones in each of which the fare will be 6 cents. (*Municipal Journal*, Sept. 21, 1916.)

Groton & Stonington Street Railway, Norwich, Conn.:

MARCH, 1917—Copper-zone system (2-cent zones instead of 5-cent) held as not unreasonable by Public Utilities Commission. (E. R. J., Vol. 47, 582, 1062 and 1089; Vol. 49, 618.)

GEORGIA

Augusta-Aiken Railway & Electric Company, Augusta, Ga.:

JANUARY, 1914—Petition asking for an increase in rates on lines in South Carolina from 1 cent to 2 cents per mile allowed by South Carolina Railroad Commission. Increase to go into effect June 1, 1915. (E. R. J., Vol. 44, 985, 1121, 1222; Vol. 45, 77, 118, 159, 1050; Vol. 46, 423.)

IDAHO

Idaho Traction Company, Boise, Idaho:

AUGUST, 1915—The company filed a schedule of rates with the Public Utilities Commission calling for increases in mileage rates. This was partially allowed by the commission, the company not to charge more than 5 cents within city limits. (E. R. J., Vol. 46, 128; Vol. 47, 801.)

ILLINOIS

Lincoln Railway & Heating Company, Lincoln, Ill.:

NOVEMBER, 1915—Company discontinued sale of six tickets for 25 cents. (E. R. J., Vol. 46, 1145.)

INDIANA

Fort Wayne & Northern Indiana Traction Company, Fort Wayne, Ind.:

OCTOBER, 1915—Application for permission to revise interurban passenger fares to 2 cents per mile, etc., granted. (Public Utility Reports, 1915 B, 1094.)

Indianapolis, Columbus & Southern Traction Company, Columbus, Ind.:

NOVEMBER, 1915—Increase from 1¾ cents to 2 cents per mile announced. (E. R. J., Vol. 46, 1145.)

Gary & Interurban Railroad, Gary, Ind.:

JULY, 1916—Public Service Commission permitted discontinuance of practice of selling fifty-four tickets for $2.15 (1¼ cents per mile), this being considered too low. (E. R. J., Vol. 48, 39.)

Union Traction Company of Indiana, Anderson, Ind.:

APRIL, 1916—Increases in fares through substitution of copper-zone system (2 cents per mile) for low fares in

franchise allowed by Public Service Commission. The increase will in some instances amount to more than 100 per cent. Former rates were declared discriminatory. (E. R. J., Vol. 47, 799.)

MAINE

Atlantic Shore Electric Railway, Sanford, Me.:

JANUARY, 1915—Filed new passenger tariff calling for cancellation of all reduced rates now in force and certain other increases in fares. (E. R. J., Vol. 45, 159.)

MARYLAND

Cumberland & Westernport Electric Railway, Cumberland, Md.:

FEBRUARY, 1915—Increased price of 100-ticket books from $4 to $4.50. (E. R. J., Vol. 45, 355.)

MASSACHUSETTS

Middlesex & Boston Street Railway, Newtonville, Mass.:

JULY, 1914—Notice filed with Public Service Commission of a proposed increase in rate of fare effective Aug. 3, 1914, from 5 cents to 6 cents for every ride between any two fare limits, with an additional charge of 1 cent for every transfer issued. (E. R. J., Vol. 44, 146.)

AUGUST, 1914—Proposed increase in rate of fare suspended by commission until Oct. 1, 1914. (E. R. J., Vol. 44, 278.)

NOVEMBER, 1914—Case appealed to Massachusetts Supreme Court. (E. R. J., Vol. 44, 1180. See also Vol. 44, 543, 591 and 792.)

Providence & Fall River Street Railway, Swansea Center, Mass.:

JANUARY, 1914—Public Service Commission notified of proposed increase in rates for local passengers from 5 cents to 6 cents per passenger per fare zone, effective Feb. 1, 1914. The increase was approved by the commission. (E. R. J., Vol. 44, 209 and 692.)

Blue Hill Street Railway, Canton, Mass.:

JULY, 1915—Public Service Commission granted increase in fares from 6 cents to 8 cents or seven tickets for 50 cents. (E. R. J., Vol. 46, 226.)

New Bedford & Onset Railway, New Bedford, Mass.:

SEPTEMBER, 1915—Public Service Commission granted an increase in fares from 5 cents to 6 cents for each existing fare limit and reduced rate tickets from twenty-four for $1 to twenty for $1. (E. R. J., Vol. 45, 819, 863, 959 and 1136; Vol. 46, 628.)

Norfolk & Bristol Street Railway, Foxboro, Mass.:

FEBRUARY, 1915—Six-cent unit fare granted by Public Service Commission. (E. R. J., Vol. 45, 1136; Vol. 46, 354.)

Bristol & Norfolk Street Railway, Randolph, Mass.:

APRIL, 1916—Petitioned Public Service Commission for permission to increase fare from 5 cents to 6 cents. (E. R. J., Vol. 47, 716.)

OCTOBER, 1916—Permission granted. In this case a street railway operated at a loss was authorized to increase the cash fare from 5 cents to 6 cents; to sell ten school tickets for 30 cents to pupils entitled to half fare, rather than ten tickets for 25 cents; and to discontinue the practice of charging half fare between the hours of 6 a.m. and 8 a.m. and 4.30 p.m. and 6.30 p.m. (E. R. J., Vol. 47, 841; Vol. 48, 469 and 553.)

Bay State Street Railway, Fall River, Mass.:

MARCH, 1916—Withdrawal from sale of strips of six tickets for 25 cents in the city of Fall River approved by Massachusetts Public Service Commission. (E. R. J., Vol. 48, 1179; Vol. 49, 56 and 457.)

Bay State Street Railway, Boston, Mass.:

OCTOBER, 1916—Public Service Commission, having been notified of intention to establish a 6-cent fare unit on all of the company's lines, denied the increase, but did allow increases on rural lines. (E. R. J., Vol. 47, 468; Vol. 48, 412, 444 and 514.)

Concord, Maynard & Hudson Street Railway, Maynard, Mass.:

APRIL, 1917—Authorized by the Public Service Commission to establish a copper-zone system of fares with a minimum fare of 6 cents and a rate of 2 cents per mile to be charged in excess. Present fare on the main line is 6 cents, with zones from 3 to 4 miles in length. Under new system road will be divided into 1-mile zones. (E. R. J., Vol. 49, 846.)

Massachusetts Northeastern Street Railway, Haverhill, Mass.:

OCTOBER, 1916—Proposed increase from a 5-cent unit zone fare to a 6-cent unit, together with proportionate increases in the charge for school children's and workmen's tickets, allowed by Massachusetts commission in part. (E. R. J., Vol. 46, 1145; Vol. 48, 951 and 1038.)

Norwood, Canton & Sharon Street Railway, Canton, Mass.:

APRIL, 1917—Public Service Commission permitted company to increase fare from 5 to 7 cents, and authorized it to sell ten tickets for 65 cents and sixteen for $1. School tickets to be sold at ten for 35 cents instead of ten for 25 cents. (E. R. J., Vol. 48, 1081; Vol. 49, 322 and 893.)

Ware & Brookfield Street Railway, Ware, Mass.:

MARCH, 1917—Fare increases amounting to a maximum of 3 cents above an existing 7-cent rate allowed by the Public Service Commission. Changes in rates requested included the shortening of a fare zone between Ware and Gilbertville, establishment of a 7-cent cash fare for every local ride within the limits of every fare zone except one, regular cash fare between above points to be 10 cents instead of 7 cents, increase of workmen's fares from 5 cents to 7 cents between above points and establishment of a 12-cent workmen's fare from Ware to West Brookfield or intermediate points in place of the former rate of 10 cents. (E. R. J., Vol. 49, 665.)

Worcester & Warren Street Railway, West Warren, Mass.:

APRIL, 1917—The Public Service Commission was petitioned for authority to increase the passenger fare unit from 6 to 7 cents between West Warren to Spencer, the 6-cent unit having been in force ten years. The 7-cent unit was authorized. Workmen's tickets valid week days, 5 to 7, morning and afternoon, to be sold 50 for $3 (formerly 100 for $5). Age limit for children carried free reduced from 6 years to 5 years. Extra fare to be charged for every package carried on platform. (E. R. J., Vol. 49, 185, 411 and 711.)

MISSOURI

Illinois Traction System, St. Louis, Mo.:

JANUARY, 1915—Application to be made to Public Service Commission and Interstate Commerce Commission for permission to increase fare from 5 cents to 10 cents between St. Louis and Granite City, Ill. The franchise provided for 5-cent fare. (E. R. J., Vol. 45, 159; Vol. 47, 475, 840, 881 and 1207; Vol. 48, 995.)

DECEMBER, 1916—Increase allowed by Interstate Commerce Commission. (E. R. J., Vol. 48, 1222 and 1269.)

NEW HAMPSHIRE

Manchester & Derry Street Railway, Manchester, N. H.:

OCTOBER, 1916—Increase from 5-cent to 8-cent unit fare allowed by Public Service Commission. (E. R. J., Vol. 46, 1059; Vol. 48, 952.)

Manchester & Nashua Street Railway, Manchester, N. H.:

OCTOBER, 1916—Increase in fare unit from 5 cents to 7 cents authorized by Public Service Commission—retention of school children's fares and commutation tickets on a 5-cent basis recommended. (E. R. J., Vol. 46, 1059; Vol. 48, 851.)

Massachusetts Northeastern Street Railway, Haverhill, Mass.:

See under Massachusetts. Petition similarly approved in part by New Hampshire commission for company's lines in that State. (E. R. J., Vol. 48, 1038.)

NEW JERSEY

Burlington County Transit Company, Mount Holly, N. J.:

MARCH, 1916—Petition to increase fare between Moorestown and Mount Holly and Mount Holly to Burlington from 10 cents to 15 cents presented to Public Utilities Commission. (E. R. J., Vol. 47, 477; Vol. 48, 81 and 912.)

NOVEMBER, 1916—Increases allowed on condition that improvements be made. (E. R. J., Vol. 48, 1223.)

New Jersey & Pennsylvania Traction Company, Trenton, N. J.:

JUNE, 1916—Increase in fare (10 to 15 cents) between Princeton and Trenton ordered after valuation by Board of Public Utilities Commissioners (zone fare). Upon appeal being taken to New Jersey Court of Errors and Appeals, commission's jurisdiction and order was upheld.

OCTOBER, 1916—The application to Board of Public Utilities Commissioners for permission to increase rate between Trenton and Philadelphia from 15 cents to 20 cents, denied in April, 1915, was allowed, tickets to be still sold at twelve for $1—four 5-cent zones created. (E. R. J., Vol. 45, 819; Vol. 46, 1279; Vol. 48, 911.)

NEW YORK

Schenectady (N. Y.) Railway:

MAY, 1914—The complaint of city of Schenectady, asking that company be required to resume sale of six tickets for 25 cents, dismissed by Public Service Commission. (E. R. J., Vol. 43, 1232.)

Hudson Valley Railway, Glens Falls, N. Y.:

DECEMBER, 1914—Tariff increasing fares, effective Jan. 1, 1915, filed with Public Service Commission. (E. R. J., Vol. 44, 1368.)

International Railway, Buffalo, N. Y.:

AUGUST, 1914—Notice of a proposed increase in fare between North Tonawanda and La Salle from 10 cents to 15 cents (effective Sept. 15, 1914), filed with Public Service Commission. (E. R. J., Vol. 44, 407.)

New York State Railways, Rochester, N. Y.:

OCTOBER, 1914—Increases in suburban fare sustained by Public Service Commission in part. (E. R. J., Vol. 44, 791 and 1274.)

New York State Railways, Syracuse, N. Y.:

NOVEMBER, 1914—Tariff filed with Public Service Commission (effective Dec. 15, 1914), providing for increase in joint one-way fares from a number of points. (E. R. J., Vol. 44, 1222.)

Buffalo & Lake Erie Traction Company, Buffalo, N. Y.:

JANUARY, 1915—Announced increase in local one-way fare between Irving and Silver Creek from 7 cents to 10 cents, effective Jan. 24, 1915. (E. R. J., Vol. 45, 119.)

Fonda, Johnstown & Gloversville, Gloversville, N. Y.:

FEBRUARY, 1915—Tariff filed with Public Service Commission, effective Feb. 1, 1915, calling for a general advance in fares. (E. R. J., Vol. 45, 159.)

International Railway, Buffalo, N. Y.:

FEBRUARY, 1915—Notice of proposed increase in round-trip fare between Buffalo and Lockport from 50 cents to 60 cents and other changes filed with Public Service Commission. (E. R. J., Vol. 45, 441.)

Newark & Marion Railway, Newark, N. Y.:

FEBRUARY, 1915—Tariff filed with Public Service Commission, effective March 17, 1915, increasing cash and ticket fares. (E. R. J., Vol. 45, 441.)

New York State Railways, Oneida, N. Y.:

APRIL, 1915—Tariff filed with Public Service Commission calling for advances in local one-way and round-trip ticket fares and chartered car rates effective May 14, 1915, on Oneida and adjacent lines. (E. R. J., Vol. 45, 819.)

Orange County Traction Company, Newburgh, N. Y.:

APRIL, 1915—Announcement of an increase in fares (local one-way) between Newburgh and Orange Lake Park or between Walden and Orange Lake Park from 5 cents to 10 cents, between the hours of 2 p.m. and 12 o'clock midnight. (E. R. J., Vol. 45, 777.)

Geneva, Seneca Falls & Auburn Railroad, Seneca Falls, N. Y.:

APRIL, 1917—Public Service Commission permits company to place into effect a new passenger tariff adding a 5-cent fare zone between Geneva and Waterloo. Twenty-ticket commutation books will continue to be sold for $2, good during morning and evening rush hours. Twenty-ride ticket books, good at any time, will be sold for $2.50. (E. R. J., Vol. 49, 665.)

United Traction Company, Albany, N. Y.:

MARCH, 1917—Following denial by Public Service Commission of an increase in fares from 10 cents to 15 cents (with full transfers) between Albany and Troy, the company filed a fare tariff for this line providing for the elimination of transfers to city lines in the terminal cities. This was allowed by the commission. (E. R. J., Vol. 48, 1040 and 1319; Vol. 49, 412, 667 and 713.)

OHIO

Cleveland (Ohio) Railway:

AUGUST, 1914—Charge of 1 cent for transfers restored. (E. R. J., Vol. 44, 404.)

Mahoning & Shenango Railway & Light Company, Youngstown, Ohio:

Increase in fares announced to go into effect on Dec. 15, 1914—2 cents per mile the basis for increase—commutation and school tickets to remain unchanged. (E. R. J., Vol. 44, 1274.)

Toledo Railway & Light Company, Toledo, Ohio:

APRIL, 1916—Company allowed by Judge Killits of United States District Court to eliminate 3-cent fare during rush hours, morning and evening, and to substitute and charge at all hours 5 cents cash or six tickets for 25 cents. (E. R. J., Vol. 47, 745 and 833.)

OREGON

United Railways, Portland, Ore.:

OCTOBER, 1914—Application to increase fares to Linton granted by Oregon Railroad Commission. (E. R. J., Vol. 43, 799 and 1119; Vol. 44, 501.)

PENNSYLVANIA

Titusville (Pa.) Traction Company:

DECEMBER, 1916—The Titusville Traction Company allowed an increase in fares from 5 cents to 6 cents in the city of Titusville, in the boroughs of Pleasantville and Hydetown and in the township of Oil Creek. (E. R. J., Vol. 48, 1178.)

Trenton, Bristol & Philadelphia Street Railway, Philadelphia, Pa.:

JANUARY, 1917—New schedule of fares in effect between Morrisville and Torresdale, Pa. The through trip fare between these two towns increased from 25 cents to 35 cents. (E. R. J., Vol. 49, 56.)

VERMONT

Barre & Montpelier Traction & Power Company, Montpelier, Vt.:

AUGUST, 1914—Proposed increase in fares held up by equity suit brought by the city—from 5 cents to 6 cents and workmen's tickets from 2½ cents to 3½ cents. (E. R. J., Vol. 44, 235 and 368.)

NOVEMBER, 1914—Increase enjoined by Vermont Supreme Court because of franchise restrictions. (E. R. J., Vol. 44, 1121.)

DECEMBER, 1914—Tariff increasing fare over line between cities from 10 cents to 15 cents filed with Public Service Commission. (E. R. J., Vol. 44, 1319.)

Increase in fare between Barre and Montpelier to 15 cents one way and 25 cents round trip, went into effect Dec. 28, 1914. For the previous eight years the fare had been 10 cents. (E. R. J., Vol. 45, 119.)

WASHINGTON

Puget Sound Electric Railway, Seattle, Wash.:

APRIL, 1914—Renewed application for an increase in passenger rates between Seattle and Tacoma, made in 1909, as follows: 2 cents per mile; commutation, 1.4 cents per mile; round trip from Seattle to Tacoma, $1.25; at which time the State Railroad Commission refused permission. (E. R. J., Vol. 43, 949.)

MAY, 1914—Allowed by Public Service Commission, which vacated the order of the State Railroad Commission which it succeeded, made in April, 1910. (E. R. J., Vol. 43, 1059, 1174, 1304 and 1420; Vol. 44, 234.)

Tacoma Railway & Power Company, Tacoma, Wash.:

JUNE, 1916—Increase in round-trip fare between Tacoma and American Lake from 25 cents to 30 cents upheld by Public Service Commission as not unjust or excessive. (E. R. J., Vol. 47, 1111.)

WEST VIRGINIA

Parkersburg-Marietta Interurban Railway, Parkersburg, W. Va.:

JULY, 1914—Allowed by Public Service Commission to increase rates between Parkersburg and Marietta from 10 cents to 20 cents by creating four traffic zones. Company required, however, to issue commutation tickets equivalent to a 5-cent fare for 6½ miles from Parkersburg. (E. R. J., Vol. 44, 235.)

WISCONSIN

Chicago & Milwaukee Electric Railway, Milwaukee, Wis.:

FEBRUARY, 1916—Authorized in April, 1915, by Wisconsin Railroad Commission and the Interstate Commerce Commission to increase ticket rates to approximately 2 cents per mile, but to maintain 5-cent zone system of cash fares. No change in 5-cent Milwaukee city fare, but ticket rates between Milwaukee City limits and Wisconsin State line on a straight 2 cents per mile basis. Cash fares collected on trains also, but collections to be made in next higher multiple of 5 cents. One-hundred coupon books for $1 to be sold by mail. Minimum fare to be 5 cents. Old

average fare was about 1.8 cents per mile. (E. R. J., Vol. 47, 383.)

Duluth-Superior Traction Company, Superior, Wis.:

April, 1916—Wisconsin Railroad Commission issued order rescinding order made Nov. 13, 1912, reducing fares by requiring sale of six tickets for 25 cents. Cash fare was always 5 cents. (E. R. J., Vol. 40, 1067; Vol. 47, 840.)

Waupaca Electric Light & Railway Company, Waupaca, Wis.:

March, 1916—Increase from 10 cents to 15 cents between Soo Line Depot and Grand View Hotel, through establishment of three instead of two zones, denied; however, a 12½-ticket rate was allowed by Wisconsin Railroad Commission. (E. R. J., Vol. 47, 627.)

CANADA

Port Arthur & Fort William Electric Railway, Port Arthur, Ont.:

September, 1914—Advisability of increasing ticket rate on municipal street railway system from six for 25 cents to 5 cents straight was considered (no interference with children's or workmen's tickets proposed), the city council finally approving. (E. R. J., Vol. 44, 592.)

Saskatoon (Sask.) Municipal Railway:

August, 1914—City Council of Saskatoon passed a resolution increasing fares from six for 25 cents to straight 5 cents. Workmen's tickets to be sold as before at eight for 25 cents for use between 6 a.m. and 8 p.m., and school children to be carried at half fare to and from school. (E. R. J., Vol. 44, 185.)

British Columbia Electric Railway, Vancouver, B. C.:

May, 1915—Fares reduced to stimulate travel and fight jitney competition, eight tickets sold for 25 cents, no transfers. (E. R. J., Vol. 45, 959.)

March, 1916—Selling of eight tickets for 25 cents discontinued. (E. R. J., Vol. 47, 512.)

Kingston, Portmouth & Cataraqui Electric Railway, Kingston, Ont.:

June, 1916—On June 1 the company discontinued selling six tickets for 25 cents and substituted a cash fare of 5 cents. Workmen's tickets, good from 6.30 to 7.59 a.m. and from 5 to 6.30 p.m., are sold at eight for 25 cents, and tickets for children between the ages of five and twelve are also sold at eight for 25 cents. (*Canadian Railway & Marine World*, July, 1916.)

Port Arthur (Ont.) Civic Railway:

Fort William (Ont.) Electric Railway:

March, 1917—Utilities Commissions of both cities adopted a new schedule of fares for Port Arthur Civic Railway, providing for one fare in each city or two fare zones; 5-cent cash, six tickets for 25 cents from 5 a.m. until 12 p.m.; workmen's eight tickets for 25 cents good during certain morning and evening hours and Sunday tickets at the same rate, good from 5.30 a.m. until 12 p.m. Children under fourteen years of age allowed ten tickets for 25 cents; students at this rate between 8 a.m. and 5 p.m. on school days. A 10-cent fare to be charged from 12 p.m. to 5.30 a.m., good for a through ride. (E. R. J., Vol. 49, 711.)

In addition to the cases in which increased rates have already been granted in whole or in part, applications for increases have been filed by various companies. Exclusive of those for lines in New York State, many of which are now acting in concert, the cases now before the authorities for disposition are:

Illinois Traction System, Peoria, Ill.
Hagerstown & Frederick Railroad, Frederick, Md.
United Railways & Electric Company, Baltimore, Md.
Bay State Street Railway, Boston, Mass.
Kansas City (Mo.) Railways.
Lincoln (Neb.) Traction Company.
Bucks County Interurban Railway, Trenton, N. J.
Trenton & Mercer County Traction Company, Trenton, N. J.
Portland Railway, Light & Power Company, Portland, Ore.
Montoursville (Pa.) Passenger Railway.
Pittsburgh (Pa.) Railways.
Milwaukee Electric Railway & Light Company, Milwaukee, Wis.

COMMUNICATION

A Publicity Bureau for the Association

Southern Public Utilities Company
Charlotte, N. C., July 2, 1917.

To the Editors:

From a letter written by the editor of the Electric Railway Journal, received about the middle of June, I obtained the impression that in an early issue of the Journal would appear some comments concerning the suggested publicity bureau for the electric railway interests of the United States, with especial reference to a conference of a number of publicity men at St. Louis early in June.

The St. Louis conference resulted in several things, the most important being the decision of those present to send the entire matter back to the American Electric Railway Association, where it rightly belongs, with some concrete suggestions as to the nature and purpose of such a bureau.

A committee composed of Mr. Brumbee of the United Railways of St. Louis, Mr. Waugh of the Interborough and the New York Railways, Mr. Burroughs of the United Railways of Baltimore, Mr. Davidson of the Denver Tramway and the writer was appointed, to prepare suggestions for interchange between the membership of the committee and the submission of the composite suggestions of the whole committee to the executive committee of the American Electric Railway Association, for consideration either at the mid-winter session or for the next annual convention of the association.

At the conference the nature of such a bureau was discussed at length, during which it was found that a wide variance of opinions existed among the publicity men taking part in the Round Table.

That a central editing office combined with a central publication office is not practical is the opinion of the writer, expressed as emphatically as is possible at the annual convention at Atlantic City in October, 1916. In this opinion I believe publicity men engaged in active electric railway service will concur.

For instance, following the Atlantic City convention, my office and that of the president of my company were flooded with offers from printing companies in many sections of the country to publish a bulletin or magazine for all electric railway companies. Their plan, in every instance, was to compile, at the central or publishing city, data of a general nature applying to all electric railways, to compose a large percentage of the publication, the various companies to furnish a small percentage of the data relating specifically to local conditions and happenings, and the publication to carry a different cover design for each company but to issue from one central office.

The scheme is all right in theory but in practice it falls down. General Hancock said several years ago that the tariff is a local issue, and electric railway publicity is a local matter, purely and simply. Conditions which prevail at Denver do not prevail at Charlotte. And publicity which is all it should be for the Brooklyn Rapid Transit would seriously affect the United Railways of St. Louis in all probability.

Hence the publication of a general bulletin to cover the entire business would be dangerous, in the first place, and it is my opinion that such a publication would fail of support at the hands of the employees of any of the interested companies.

And again, such a plan of handling the publicity of electric railway companies would entail endless complications and take from the individual company the control of the publication, to a great extent, if not entirely.

I am of the opinion that a bureau within the American Electric Railway Association, whether as a department of the Transportation & Traffic section, or as a new section, either alone or in conjunction with the public relations committee, could and would serve the proper ends. As an information bureau for companies not operating a department of publicity, it would be of immense value. There is not a week in which I do not receive requests from other companies for information concerning operating methods. Requests for cost data, circulation plans, policies and the like come in all through the year. I am glad, always, to give this information, and doubtless every other publicity man feels the same way. But the company desiring this information must needs analyze the information received from many sources, spend considerable time in securing it and possibly miss the company having very nearly the same conditions under which to operate.

My suggestion would be to have periodical reports made to the secretary of the bureau, similar to the fare research work now under way, and which is proving of so much value to the business. All information, of whatsoever character, would be included in these reports, and when any company desired information concerning publicity the secretary could furnish immediately detailed reports, confidentially, if need be, from every company operating a publicity department.

So much for the company contemplating or considering the establishment of such a department.

But the greatest value would be to the companies already operating such a department. For instance, should I desire information concerning the operation of any given line of publicity the secretary could give me, without loss of time, the experience of every company of the association, at an expense that would be inconsiderable.

Advice concerning the advisability of publishing certain information would come from the bureau, having in hand information concerning the experience of all the railways.

Advice as to how to secure desired matter for publication and the actual preparation, in isolated cases, of articles for individual companies or for the business at large would, under my plan, come from this bureau.

I am opposed now, and always have been, to the organization of a bureau of electric railway publicity men aside and separate from the American Electric Railway Association. I am on record in the office of the secretary of the A. E. R. A. as being opposed to the conference of publicity men at St. Louis in June, unless it were approved by the executive committee of the association and were in line with the desires of the officers. I thought the conference would accomplish good results as a round table discussion of the difficulties publicity men meet in their work, but if the meeting contemplated, as I understand it did, the organization of a department of the Associated Advertising Clubs of the World, or of a separate bureau or association, outside the A. E. R. A., I was opposed to the entire proceedings. And the action of the publishers at the St. Louis conference, in deciding to offer suggestions to the association for the organization of such a bureau within the association, is directly in line with the opinion of leaders in the publicity field, including Ivy L. Lee, James H. McGraw, A. D. B. Van Zant and others at the Atlantic City convention in 1916.

Since the St. Louis conference I have not heard from the other members of the committee appointed to prepare suggestions for interchange, but within the coming month I shall have my suggestions in shape, covering in more detail the general ideas presented herein, for the other members of the committee, and I am trusting that within that time the entire committee will have its suggestion in the hands of each other, so that we can then begin the formulation of the concrete suggestion to the executive committee for its consideration at the mid-winter meeting.

LEAKE CARRAWAY, Director of Publicity.

Trial Six-Cent Fare for Bay State

New Fare Unit Becomes Effective on July 13 for Six Months' Trial—Sale of Twenty Tickets for One Dollar Approved—No Transfer Charge

THE Massachusetts Public Service Commission on July 3 granted the Bay State Street Railway, Boston, Mass., permission to establish a 6-cent fare unit on its entire system for a six months' trial period. This decision followed an agreement between the company and a number of the larger municipalities served, as outlined in the issue of the ELECTRIC RAILWAY JOURNAL for June 30.

WHAT THE COMPANY DESIRED

The company appealed on May 16 for increased rates on the ground that the cost of operation had increased so rapidly since the decision of Aug. 31, 1916, that the revenue had become entirely inadequate. On June 12 the company filed a schedule of fare changes. Under this it was proposed to make the unit cash fare 6 cents upon all lines; to sell nine transferable tickets for 50 cents good except on Saturday afternoons, Sundays and holidays, in the present 5-cent zones within, from or to the centers of seventeen cities, and to charge 1 cent for each transfer issued; to abolish certain commutation, excursion and special tickets, including the 8-cent check between the company and the Boston Elevated Railway; and to increase the rates for workmen's tickets to 80 per cent of the cash fare where they cover two zones, and to 66 2/3 per cent of the cash fare where they cover three zones. At a hearing on June 21 the company introduced evidence that it required $1,404,906 additional yearly revenue, and computed that the proposed change would yield a yearly increase of $1,111,700.

MODIFICATIONS MADE IN FARE PROPOSAL

There was much opposition to the schedule proposed. As the result of conferences between the company and the municipalities concerned, the company amended its

plan to provide for the sale of twenty tickets for $1, such tickets to be good except on Saturdays after 1 p. m., Sundays and holidays, within the seventeen cities, between such of those cities as are adjoining, and between such cities and adjoining towns or portions of towns as by reason of location or density of population are practically part of such cities. The proposed charge of 1 cent per transfer was eliminated, but provision was made for the adjustment of transfer privileges outside this territory by restricting the length of ride to that reasonably furnished for a single fare. The proposed increases in workmen's tickets and the cancellation of commutation and other special tickets were also eliminated, although the company might later file a separate schedule. It was also understood that any patrons within the present 5-cent territory who would be excluded from the use of the twenty-ride tickets would have the right of appeal without prejudice, and a like plan was agreed upon with respect to transfers. The company would keep a detailed record of a six-months' trial, after which, upon application to the commission, the entire case should be reopened.

As a result of these modifications the company estimates that the annual increase in operating revenue will be reduced from $1,111,700 to $720,000. The commission does not consider this estimate unduly low. It is satisfied that the results from operation, at least during the experimental period, will not make possible an excessive return upon the investment. In regard to the sale of tickets (the municipalities urged the sale of ten tickets for 50 cents or five for 25 cents), the commission holds it not unreasonable to require an investment of $1. It takes this stand because the large majority of present schedules for workmen's and other special tickets provide for an investment of $1 or more; because an investment of a like or a larger amount is commonly required for similar tickets issued by other Massachusetts companies, steam and electric; and because the issue of such tickets in smaller amounts would facilitate their use by casual riders and thus lead to an unwarranted decrease in revenue.

In regard to the plea of certain communities for exemption, the commission says: "Without much question other communities might have urged considerations equally pertinent to show that they also should be exempted. Such objections, we feel, are based upon a failure to appreciate the spirit and significance of the agreement. Under this the company will not secure all that it claims it ought to have, and this is equally true of certain communities." The commission concludes that the parties have been wise in coming to an agreement, and that the rates proposed are not unreasonable as a basis of trial.

Speaking of the decision, President P. F. Sullivan said:

"When we ask the public to turn in and help us make a success of this six months' experiment, we have their interests in mind as well as our own. City officials can aid us materially by regulating jitney competition. We do not ask that jitneys be abolished. All we ask for is a square deal. Unregulated jitneys divert from our treasury more than $300,000 a year.

"We are going into this experimental period with the feeling that we have back of us the public, and we shall take special pains to acquaint the public with what we are doing. If operating costs go up, we shall tell them that; and if they go down, it will be with special pleasure that we shall tell them that also. We are assuming that our business is the public's business, and that the public should know all about it."

AMERICAN ASSOCIATION NEWS

American Association Will Hold "Conference" Instead of Convention

At a meeting of the American Association executive committee in New York on June 26 the following were in attendance: L. S. Storrs, J. J. Stanley, J. H. Pardee, M. C. Brush, M. R. Boylan, F. R. Phillips, R. E. McDougall, Thomas Finigan, James H. McGraw, H. H. Vreeland, T. N. McCarter, C. L. Henry, J. D. Mortimer, J. N. Shannahan, H. C. Donecker and E. B. Burritt. The most important items taken up were as follows:

It was decided that a meeting of the executive committee should be held at such a date this fall as may be determined by the president and the chairman of the subjects committee. An invitation will be extended to all interested in the industry to meet at that time for conference. This meeting will be held in New York.

With regard to the work of the affiliated associations, it was recommended that all committee work except that which can be handled by correspondence should be held in abeyance; that the annual meetings be omitted; that the present officers be continued in office, and that the personnel of committees remain as at present until the 1918 convention. It is understood that no reports will be presented by any association at the conference.

The status of the manufacturers in the association was brought up for discussion in connection with the report of the sub-committee of manufacturers. This report was received, and after discussion it was decided that the committee on constitution and by-laws should be directed to prepare amendments to these instruments, to take their regular course, to provide as follows: For the election of two manufacturer members as members of the executive committee, with the understanding that if the manufacturers form an affiliated association the president shall be ex-officio member of the executive committee in addition to the other two. In this connection the executive committee recommended that the manufacturers be invited to form an affiliated association. The committee also approved the letter ballot canceling the annual convention.

In addition to the formal work of the meeting, President Storrs outlined the activities which have been carried on by the committee on national defense, and there was also an informal discussion on rates of fare.

Engineering Executive Committee

The day following the meeting of the American Association executive committee the Engineering Association executive committee met and ratified the recommendations already referred to in so far as they affect the Engineering Association. The resignation of Vice-President G. W. Palmer, Jr., was also received with expressions of regret and appreciation of his faithful service. In attendance at this meeting were Messrs. F. R. Phillips, W. G. Gove, C. F. Bedwell, L. P. Crecelius and E. B. Burritt.

EQUIPMENT and MAINTENANCE

HAVE YOU A GOOD WAY OF DOING A JOB?
—Pass It Along

Read in This Issue:
The Scheme Described by R. C. Cram for Cutting Asphalt Pavement

Cutting Sheet Asphalt with Angle-Iron and Road Roller

A Scheme for Simplifying a Disagreeable and Troublesome Job—Considerable Saving in Cost Effected by Its Use

BY R. C. CRAM
Assistant Engineer Way and Structure Department, Brooklyn Rapid Transit System

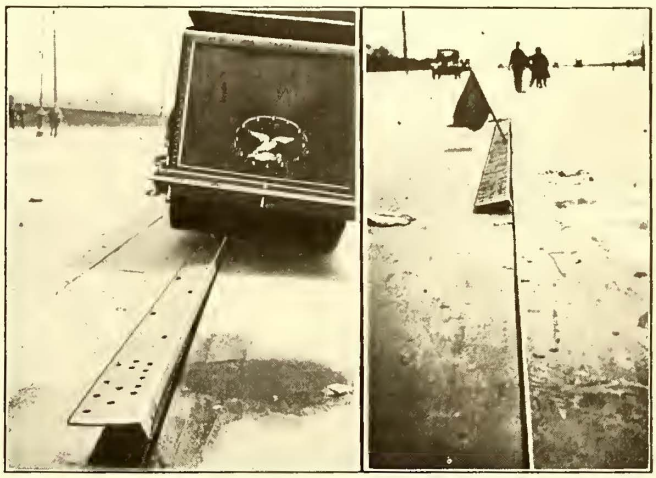
Cutting out sheet asphalt by means of the ordinary asphalt mattock or cutter, using manual labor, has always been a slow process and one which is particularly severe on the men themselves. In hot weather the job is not an enviable one and of late the labor has been difficult to get and more difficult to keep at such work.

When a job of removing a large amount of sheet asphalt surface presented itself under these conditions, it seemed advisable to adopt some other method which would be less primitive and which would obviate the labor difficulty. Some consideration was given to devices which could be attached to a road roller, as has been done elsewhere at times. The device described by M. E. Stark in the issue of the ELECTRIC RAILWAY JOURNAL for Jan. 20, 1917, page 123, also came to mind, but this could not be used on the work in hand because there were no car tracks upon which to operate. On the contrary, we were preparing to build an extension through a street paved with sheet asphalt.

Before attempting to equip a roller at considerable expense, the suggestion was made by C. L. Crabbs, engineer way and structure, that we try the simple expedient of laying a long piece of angle-iron having unequal legs, 4 in. x 3 in. or 6 in. x 3 in., upon the surface, with the shallow leg down to form a cutting edge, and rolling it into the pavement with our 8-ton tandem road roller.

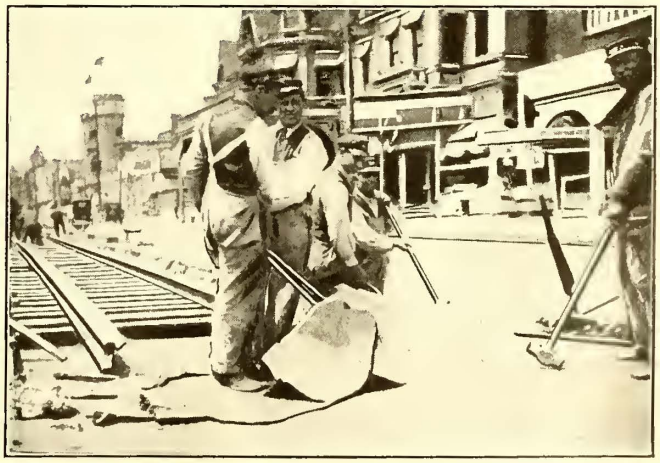
A piece of 6-in. x 3-in. angle about 20 ft. long was accordingly obtained and the 3-in. leg was cut off to 2½ in. and sharpened slightly. This was cut off to prevent the edge from getting into the concrete in case the asphalt and binder was less than the original 3 in. in thickness on account of wear. It was then laid on the pavement and rolled in as suggested. At the first test the scheme was found to be successful and other pieces of angle were obtained which could be placed ahead of the roller, keeping it in continuous operation, the angles being removed from behind after rolling and placed ahead of the roller in turn.

Some fears were expressed before trial as to whether the angle could be removed readily after being rolled in, but no such difficulty arose. On the contrary, after rolling a few times the ends of the angles curl up slightly and one end stands up so that the angle may be removed with ease. It is almost unnecessary to say that we now expect to use the device for cutting asphalt in the 2-ft. strips adjacent to tracks requiring removal for reconstruction. There is a considerable saving in costs effected by this scheme, but comparative data are not yet available.

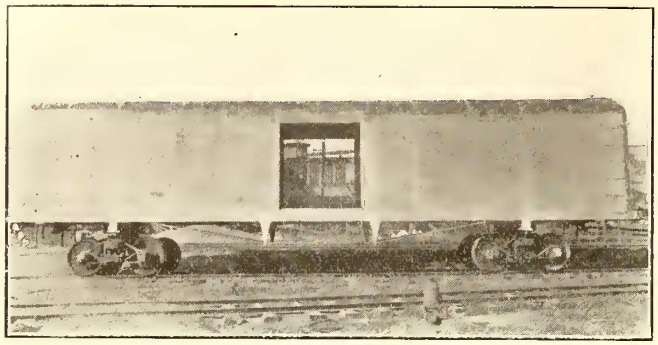


CUTTING ASPHALT PAVEMENT WITH ROLLER AND ANGLE IRON

Since trying out the angle-iron scheme so successfully we have hit upon an improvement which is now being substituted for the angle iron. This is a T-iron made by cutting off the head through the web of a 105-lb. girder rail and sharpening the cutting edge somewhat. The upright of the T forms the cutter, 2½ in. deep as before, while the upturned base, 6 in. wide, furnishes a surface upon which the roller will run even better than on the back of the angle and prevent damage to the roller in dropping from the cutter to the pavement.



AFTER CUTTING, THE ASPHALT IS STRIPPED OUT WITH LINING BARS, OCCASIONAL BLOWS WITH A SLEDGE BEING GIVEN



NEW STEEL FREIGHT TRAIL CAR FOR MICHIGAN RAILWAY

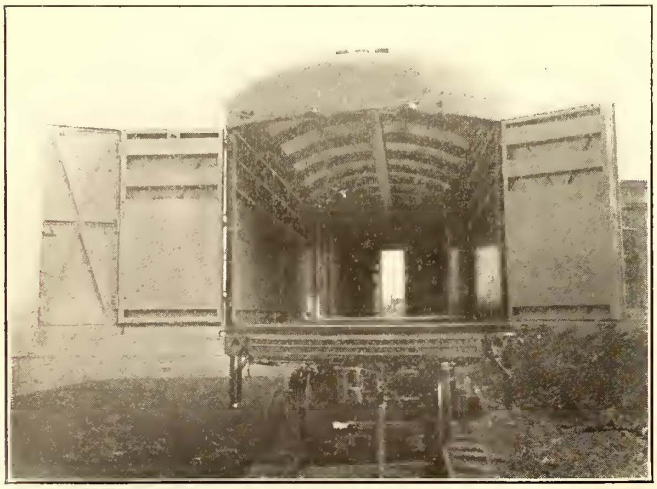
All-Steel Freight Cars for Michigan Railway

Ends of Car Swing Open and Facilitate Handling Shipments of Automobiles

Ten new arch-roof freight trail cars of unusually high-grade construction have recently been placed in service on the Michigan Railway. These are all of steel construction except for the wood floors, and are equipped with Rico anti-climbers. The length of the bodies over bumpers is 50 ft. and the width over sheathing is 8 ft. 11 in. The truck centers are 30 ft. apart. The body framing consists of side-sill angles, 7 in. x 3½ in. x ½ in., with intermediate longitudinal sills of 7-in. channels. The center cross-sills are made with 7-in. I-beams and the other cross-sills are 5-in. channels riveted to the longitudinal sills with the flanges turned down. An anti-telescoping plate of ⅛-in. steel is riveted to the longitudinal sills and bumpers. Underframe truss rods, 1½ in. in diameter, fitted with open-type turnbuckles, serve to reinforce the car against sag. The body bolsters are of the built-up type.

The 3-in. I-beam side posts are continuous from side-sill to side-sill, arching over the car to form the car-lines. These are riveted to the side-sills and reinforced with double-angled plates. The sides of the cars are framed for a 6-ft. single sliding steel door in the center, and the ends are equipped with a 28-in. steel swing central door. Three of the cars of this allotment are constructed for hauling automobiles. The entire ends are made up of three steel doors which open up the full width of the cars to the ingress or egress of machines. The inside of these cars have a ⅛-in. steel lining extending from 6 in. below to 48 in. above the floor. The outside sheathing is 3/32-in. sheet steel extending from side-sill to letterboard.

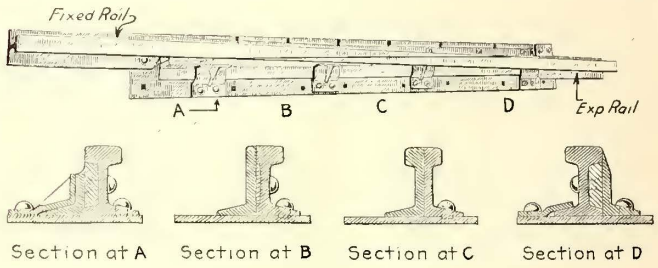
The car body and steel freight trailer trucks were built by the St. Louis Car Company.



MICHIGAN RAILWAY FREIGHT CAR WITH END OPEN TO RECEIVE AUTOMOBILE

Use of Electrically Welded Joints on Exposed T-Rail Track

In order to extend the life of old T-rails on exposed tracks, where the joints have become badly cupped, the Public Service Railway, Newark, N. J., has made considerable use of the Lorain standard electrically welded joint. The company has a number of stretches of exposed track where this practice has been followed, the principal ones being on the line between Haddon Heights and Woodlynne, for a length of about 3½ miles, and another piece of about 1 mile in length on the Riverside line in Hamilton Township. The former was welded about four years ago and the latter a year later. These joints are giving entire satisfaction and the process is highly recommended by the company. Standard expansion joints, as shown in the accompanying sketch and cross-sections, were inserted at the beginning and end of every curve and also at intervals of 1000 ft. to 2000 ft. on tangents.



SKETCH AND CROSS-SECTIONS OF EXPANSION JOINT

Besides rejuvenating the rails the welded joint, of course, provides a perfect electric bond. It is not the practice of the Public Service Railway to weld the joints on newly-laid exposed track, because the mechanical joint is good enough for a number of years and is obviously much cheaper. On tracks laid in permanently paved streets, where the mechanical joint is inaccessible after it is once installed, it has become the standard practice of this company to weld all of its new rails and thus practically to create a jointless structure, thereby increasing its life.

Feeder Cable Theft Alarm Signal

BY E. H. HAGENSICK

Superintendent of Electric Lines Omaha & Council Bluffs Street Railway, Omaha, Neb.

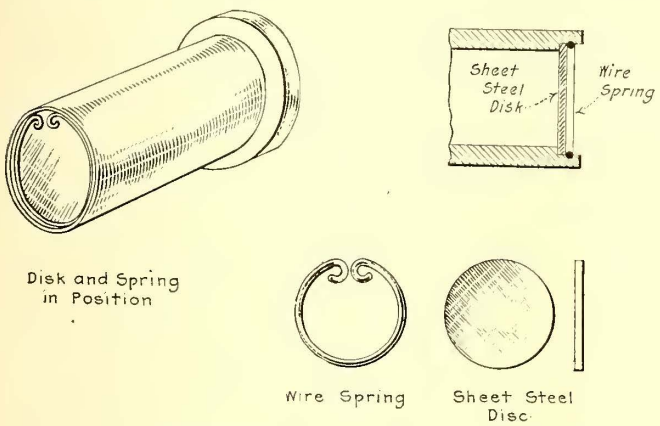
Trouble with the loss of feeder cable by theft after car service was off at night led to the installation on the Omaha & Council Bluffs Street Railway lines of a burglar alarm system. A small gage wire was strung from the substation over a route different from that of the feeders to the outlying districts. This was connected to the feeders at the far ends. A bank of lamps for resistance in series with a relay was mounted on the back of the switchboard in the substation and connected between the cable and ground. After service is off at night, the feeder cable, of course, is de-energized.

The small telltale wire is connected to the d.c. busbar, and current is carried to the end of the feeder and back over the latter through the bank of lamps and the relay to ground. Should anyone cut the feeder the loop circuit is broken and the relay armature drops to normal position and causes an alarm bell to ring. The night operator then quickly dispatches someone out over the cable route to intercept the thieves. The system has worked very successfully.

Commutator End of Armature Bearing Protected by Simple Device

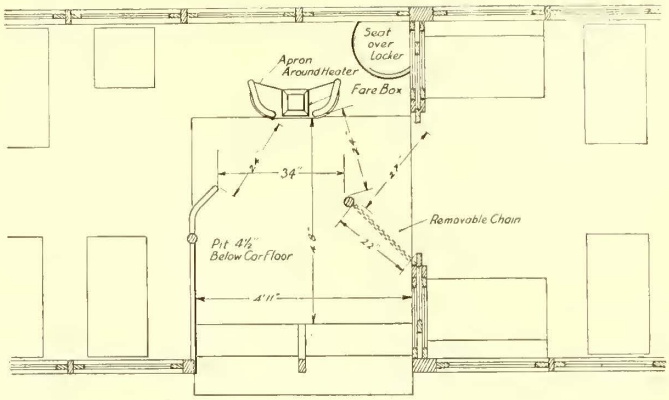
The commutator end of the armature bearing of the old-type GE-57 motor is usually protected by a sheet of canvas. This frequently comes off, works loose, or is damaged by the end of the armature shaft, thus allowing dust and dirt to get in and grind out the bearing.

This trouble has been overcome in the shops of the Elmira Water, Light & Railroad Company by cutting off



PROTECTION FOR END OF ARMATURE BEARING

the end of the armature shaft, cutting a groove around the inner circumference of the bearing and inserting there a sheet of No. 14 gage sheet steel. The latter is held in place by a piece of No. 6 spring steel wire bent to form an open circle and then sprung into the groove after the sheet-steel disk is in place.

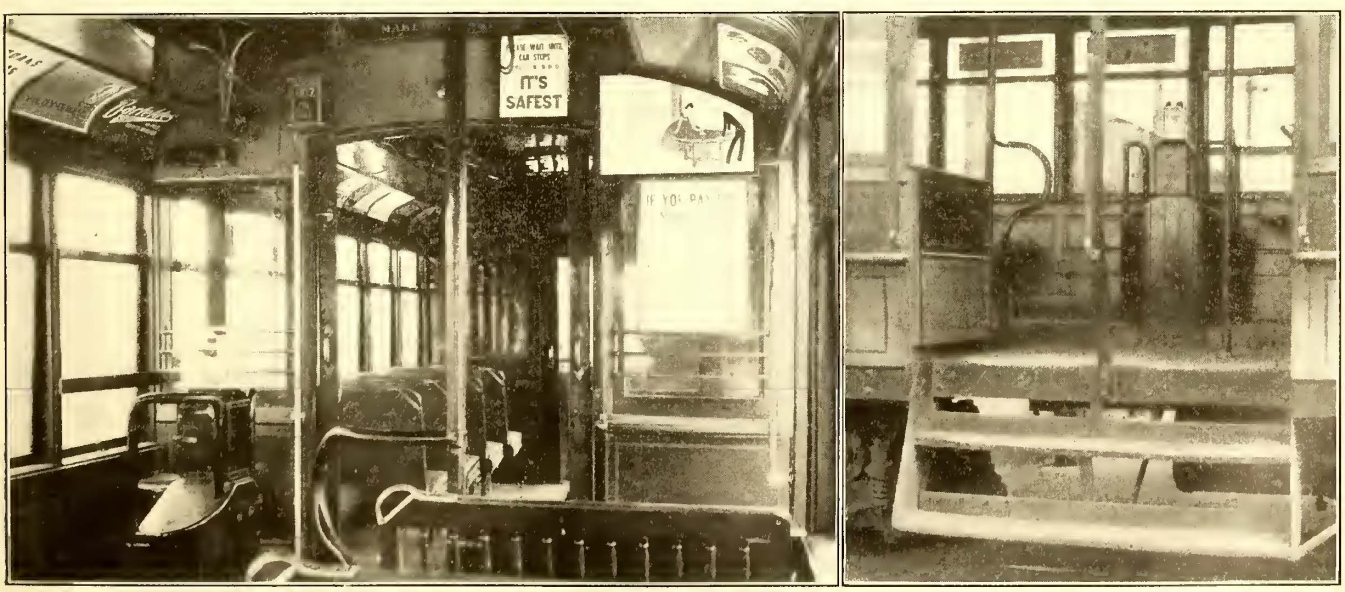


PREPAYMENT PLATFORM ARRANGEMENT FOR DENVER CARS

Changing Denver Center-Entrance Cars for P-A-Y-E Operation

In order to install the pay-as-you-enter fare collection system on the center-entrance cars of the Denver Tramway, some slight changes in the platform arrangement were necessary. The longitudinal seat opposite the entrance was taken out, and also half of the first cross-seat behind this longitudinal seat, thus losing four seats. The space formerly occupied by this three-passenger longitudinal seat serves as an advantageous position for the conductor, since the floor is 4½ in. above the floor of the entrance well, and thus gives the conductor a good view of passengers entering and leaving the car.

The Johnson fare box used is mounted on an asbestos-lined wooden hood located in the center of the entrance platform, but on the car floor level as seen in the accompanying drawing. Since the entrance and rear half of the Denver cars are open the year around, an electric heater was installed underneath this hood, which will serve to take off some of the chill at the conductor's position. A seat installed in the corner at the central bulkhead lifts up and forms a locker for storing surplus transfers, etc. The arrangement of the two stanchions and prepayment rails is shown in the accompanying drawing. The rails beside the fare box serve to give passengers a hand-hold while waiting for change and



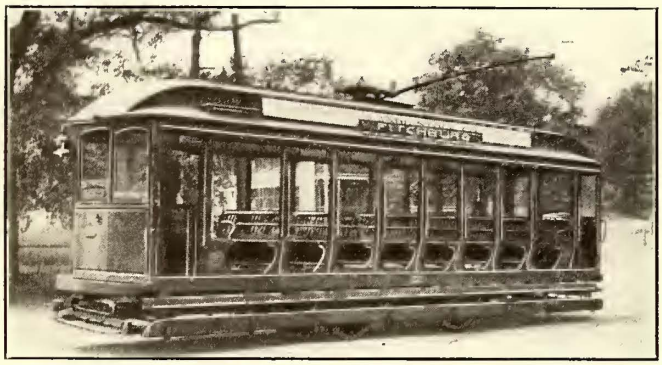
FARE BOX AND REGISTER INSTALLATION IN DENVER CENTER-ENTRANCE CARS. VIEW OF DENVER PREPAYMENT ARRANGEMENT FROM OUTSIDE OF CAR

transfers. The International register installed on the bulkhead of the car is operated by a foot pedal underneath the fare-box hood. This leaves the motorman's hands free for making change, issuing transfers, etc.

Economical Stenciling of Car Signs

BY W. P. LISH
Master Mechanic Fitchburg & Leominster Street Railway, Fitchburg, Mass.

Instead of using an ordinary brush in making stencil signs for cars we use a sheepskin pad attached to a 2-in. x 4-in. wooden block. This has been found to be an



CAR HAVING STENCIL SIGNS ADVERTISING PARK AMUSEMENTS

effective means of securing a sharp outline which gives the sign the appearance of having been printed.

The letters are stenciled on starched cotton costing about 6 cents per yard by means of the two-plate process. In one instance twenty-four 12-in. x 18-ft. signs, one of

USE OF SHEEPSKIN PAD IN MAKING STENCIL SIGNS

which is shown in the accompanying illustration, were made in five hours. This has proved an especially effective means for providing park advertising signs for our cars.

In an Ohio power plant a bonus system has been introduced under which each employee gets from $1 to $15 per month when the coal consumption is between 2.95 lb. and 2.55 lb. per kilowatt-hour. There was an almost immediate reduction from 3.10 lb. or more to 2.85 lb. or less when the plan was put into effect, a part of which was undoubtedly due to the system.

Motor Trucks in Seattle

Costs of Operation of Gasoline and Storage-Battery Vehicles in Railway and Lighting Service

For several years past the Puget Sound Traction, Light & Power Company has had in service a number of gasoline and storage-battery trucks in both the railway and the lighting and power departments. The latter department makes use of the major part of the equipment, and the most common type is the 1½-ton White truck, although there is a 5-ton ash car and a ¾-ton truck that is used for such light work as connecting and disconnecting services at scattered points about the city. There are also a ½-ton meter car and two 1½-ton units with storage-battery drive. Two of the 1½-ton gasoline trucks are used on heavy line construction work and another is equipped with a power-driven winch, just back of the driver's seat, and is used by the pole gangs. With the latter equipment poles are hauled out and delivered at the job by means of a regular pole wagon trailing behind the truck. Poles are loaded on this wagon by using the winch to wind up a line extending across the wagon and looped around the pole. Poles are also snaked short distances by means of a line on the winch where the ground is not good traveling for the truck. The company also has a derrick mounted on a gin wagon which is hauled as a trailer behind the pole truck and is used for raising and setting poles with the line from the winch, while transformers are frequently raised to crossarm platforms by the same means. In consequence, the company is able to do with this car all work requiring a horizontal pull without obstructing the street, as is the case when the truck drives off pulling a line attached to its rear.

As some of the trucks have been in service for a considerable period reasonably reliable cost data are available, and these are given in the accompanying table. This table shows the figures covering operation of four White gas trucks and three General Vehicle storage-

MOTOR TRUCK TOWER WAGON FOR RESERVE

STORAGE BATTERY TOWER WAGON OPERATED IN SEATTLE

battery trucks for one year. Of the trucks shown on the list only one, that used as a tower wagon, is used by the railway department, the others being lighting department equipment. The trolley trouble crews, however, have two cars, one a 1½-ton Kelly-Springfield gasoline machine that is kept at the carhouse for emergencies and the other the 1½-ton electric truck that is listed in the table, this latter being used for regular repair work to the overhead lines.

As an example of the cost of operation of a gasoline line truck extending over a longer period of time than covered in the table, there may be cited cost data on a truck that was placed in service on Oct. 15, 1912, the data extending to Dec. 31, 1915. This car was a 1½-ton White truck. The original cost was $3,300, and during the thirty-eight and one-half months included in the period under observation the car made 24,100 miles. The average mileage per gallon of gasoline was 6.1 and the average cost of gas per gallon was 13 cents. Approximately 30 miles were run per quart of lubricating oil at a cost of 14 cents per quart. On a basis of cost in cents per mile the following figures obtained:

Cost of gasoline	2.15
Cost of oil	0.36
Cost of miscellaneous operating expense	0.86
Total operating cost (cents per mile)	3.37
Cost of tires	2.41
Cost of repairs	3.58
Total maintenance cost (cents per mile)	5.99
Total operation and maintenance cost	9.36
Interest	2.53
Depreciation	9.15
Additional equipment	0.20
Total cost (cents per mile)	21.24

In the compilation of the above figures the wages of the drivers were in each case charged to the job on which the truck was operated. Depreciation was figured from an assumed present value of $1,000 for the car.

COST DATA ON TRUCKS OF PUGET SOUND TRACTION, LIGHT & POWER COMPANY

Service	Cap'y of Truck, Tons	Miles Made for the Year	Total Cost per Mile, Cents	Cost per Mile for Fuel or Power, Cents	Miles per Gal. of Gas or per Kw.-Hr.	Cost per Mile per Driver, Cents
Gasoline trucks:						
Line car.....	1½	3,584	23.7	3.0	5.14	9.31
Line car.....	1½	7,735	24.2	2.33	5.75	12.0
Line car.....	1½	7,743	20.6	2.86	5.41	9.04
Ash car.....	5	8,654	42.6	5.10	3.05	28.2
Electric trucks:						
Meter car.....	½	4,392	26.0	1.78	1.38	9.6
Tower wagon.	1½	2,332	27.0	3.15	0.79	18.5
Dump car....	1½	4,543	47.5	6.22	0.42	27.0

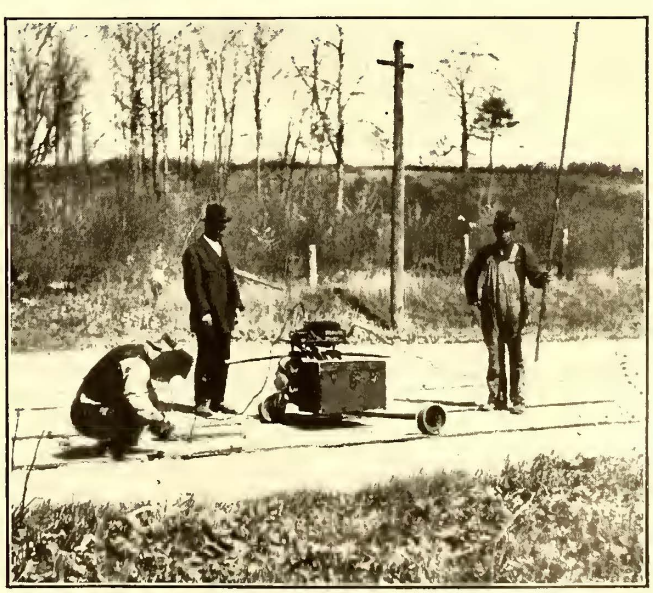
NOTE—Cost of fuel for gasoline trucks includes lubricating oil. Line cars used by lighting department; tower wagon by traction department

Distinguishing Between Limited and Local Trains

The Chicago, North Shore & Milwaukee Railroad has adopted a plan of painting the front end of its limited cars above the window sills an orange color in order that they may be distinguished from the local passenger cars. This was done for the safety of both employees and passengers waiting for trains, since by this means they can tell if an approaching train is a limited and will not stop. This coloring also sets the cars off from the general green of the landscape and helps to avoid crossing accidents due to failure on the part of pedestrians or vehicle drivers to see approaching trains.

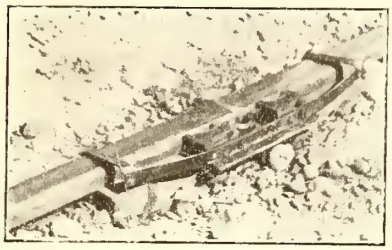
Good Results from Electric Bonding Machine

One hundred joints are bonded in a nine-hour day by the regular track men of the Worcester (Mass.) Consolidated Street Railway, an electric-arc bonding equipment being used. The accompanying illustrations show a general view of the bonding gang, the mold set in position at the joint and the completed bond after the welding has been performed. The equipment was made by the

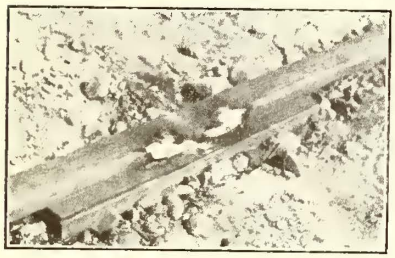


TRACK BONDING WORCESTER (MASS.) CONSOLIDATED STREET RAILWAY

Lincoln Bonding Company and has been previously described in the ELECTRIC RAILWAY JOURNAL. It consists essentially of a motor-generator set which supplies a bonding current of 250 to 300 amp. at a low voltage, the supply power being taken from the 600-volt overhead trolley.



MOLD IN PLACE FOR ARC-WELDED BOND



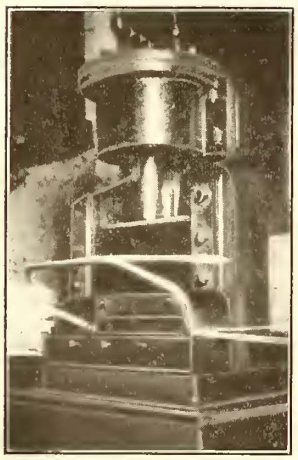
ARC-WELDED BOND AFTER COMPLETION

The apparatus is compactly mounted on a three-wheeled truck made to operate on the running track. As it can be removed by two men in twenty seconds on approach of a car, the bonding is done without interrupting traffic. It requires about three minutes to make a complete bond, including the attachment of the mold, the starting up of the motor-generator set, the welding process, the removal of the mold and the rounding up of the bond terminals. The time required for the actual welding is forty to fifty seconds. After removing the mold the ends of the bond are hammered round to divert wagon wheels.

Air Press for Armature Coils

BY G. B. SISSON
Mechanical Department, Georgia Railway & Power Company, Atlanta, Ga.

One of the features of our armature room is a home-made pneumatic press devised by J. E. Eaves, master mechanic, for pressing armature coils. It replaces a slow hand-operated screw press, and makes a more uniform coil than was possible with the varying human pressure exerted with the screw press. The controlling mechanism is made from an old whistle valve and is operated by a pedal so that both the operator's hands are left free to hold the coil. This press has been in satisfactory use for several years.

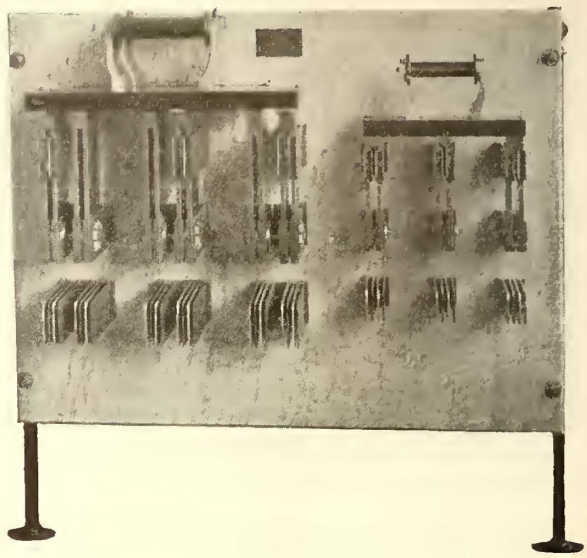


HOME-MADE PNEUMATIC PRESS FOR ARMATURE COILS

Ventilation of manholes on the system of the Augusta-Aiken Railway & Electric Company is accomplished by connecting to the manhole a 4-in. pipe which extends several feet in the air and supports a small wooden box. In this box there is an electric fan which forces fresh air into the manhole while the warm air is being discharged through the openings in the manhole cover.

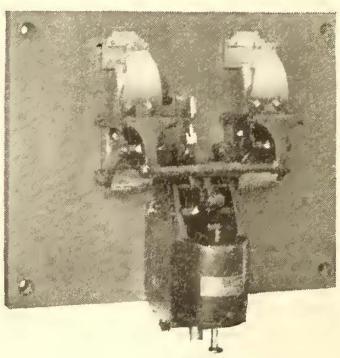
New Developments in Electrical Switches

In order to reduce the effort necessary to operate the enormous lever switches used for starting large synchronous converters from the a.c. side in conjunction with auto-transformers, the split-lever starting switch shown in the accompanying illustration has been developed by the General Electric Company. The illustration shows two triple-pole lever switches for starting a six-phase converter. The switch at the left is of the new type. It comprises actually two triple-pole switches, each with its own handle and crossbar. Thus it is necessary for the attendant to move only one part of the switch at a time instead of handling the entire weight, as in the older type. Switches of this type have been built up to 5000 amp. capacity.



NEW TYPE OF ROTARY CONVERTER STARTING SWITCH

To start a synchronous converter, the switch blades are connected to the two-thirds voltage tap for but a short time, the switch jaws being constructed so that contact is made only with the outside switch; *i.e.*, the part which is thrown first. When this half of the switch, with one-half the blade area, is thrown down, it carries the current until the remaining or back half of the switch has been thrown into the lower position



SOLENOID-OPERATED FIELD SWITCH WITH FIELD DISCHARGE FEATURE

A type of double-pole solenoid-operated field switch has been developed by the same company which is similar in construction to the non-automatic solenoid-operated air circuit breakers, the principal points of difference being the omission of carbon secondary contacts and the addition of a field-discharge switch. The field-discharge switch is so arranged that the opening of the solenoid-operated field switch introduces a resistance across the field of sufficient value to prevent injury to the field-coil windings by the inductive kick.

London Letter

London Has Bus Strike—London County Council Lines Under Heavy Burden—Tramway and Vehicle Workers Consider Status of Women Employees

(From Our Regular Correspondent)

London suffered during the past month from a bus strike. For five days no buses were in use on the streets, except for a few running on the munition routes in the Woolwich neighborhood. The withdrawal of nearly all bus communications in London was seriously felt. The tubes naturally became extremely overcrowded, and it was with a feeling of satisfaction that the public learned that an agreement had been reached by the intervention of the government. A conference was held between representatives of the London General Omnibus Company and the London & Provincial Union of Licensed Vehicle Workers, with representatives of the Transport Workers' Federation present. The Right Hon. Arthur Henderson, M. P., intervened on behalf of the government. It is understood that the application for a war bonus will be proceeded with by the committee on production, and arrangements have been made so that the relations between the company and the Union of Licensed Vehicle Workers are again placed on a satisfactory basis. The conference took place in Mr. Henderson's private room. Afterward a meeting of the representatives of the men was held, and as a result the men accepted Mr. Henderson's terms. The next day London had a full complement of buses at work again. The war bonus asked for is 10s. a week for drivers and conductors, and 5s. for the skilled and semi-skilled garage staff. This matter will be settled by arbitration at a conference to be presided over by Sir George Askwith.

War conditions have imposed heavy financial burdens on the London County Council Tramways. In order to secure additional revenue the highways committee has decided to suspend halfpenny fare stages and ordinary return tickets. Workmen's return tickets and children's fares will not be affected. It is estimated that these changes will increase receipts by £60,000 and £45,000 a year respectively. In its report the committee pointed out that the annual cost of war wages and bonuses and allowances to dependents was £268,400. The revenue estimates for the current financial year showed a deficit of £89,402, which would more than exhaust the general reserve fund. Under the abnormal conditions now prevailing the difficulties in the way of efficient fare collection have been considerably increased, and 54 per cent of conductors at the present time are women, most of whom have only recently entered the service. Distances are covered very rapidly, and the size of the Council's cars, and the conditions under which they are operated, make it extremely difficult to deal with halfpenny passenger traffic, distances being covered with such rapidity. The Council's cars are of the largest type in use, and the average speed of approximately 9 m.p.h. is in excess of that prevailing on any other tramway in this country.

Terms have now been agreed upon for the purchase by the London County Council of the portion of the undertaking of the London United Tramways, Ltd., within the county area. The lines affected are situated in the borough of Hammersmith, are about 5½ route-miles in length, and are worked on the overhead trolley system. They include the London terminals of the system at Hammersmith Broadway and at Shepherd's Bush Green, the system itself extending to Hampton Court, Hounslow, and other points in Middlesex. The agreement includes provision for running arrangements between the Council and the company; for the transfer to the Council of the Chiswick power station and plant, and for the supply by the company of power for the running of cars on the purchased lines for twenty-one years free of cost. Including the purchase price (£235,000) and costs and expenditure on reconstruction work, the capital outlay will amount to £320,899. As regards the lines to be purchased it is estimated that there will be an annual surplus on working of £22,917 after providing for renewals, but exclusive of power and debt charges.

Sir Edward Henry, commissioner of police of the Metropolis of London, has given notice regarding motor omnibuses that new vehicles presented for licensing must be lighter in weight and with a better form of power transmission than the existing type. He invites the co-operation of manufacturers. In the past it has been found that motor omnibuses approaching the maximum allowed of weight unloaded and of permissible speed caused much annoyance and damage through noise, vibration, etc. The present vehicles weigh without load about 3½ tons, and when fully loaded with passengers about 6 tons.

The men in the employ of the Dundee tramways department are to receive another increase in wages. The advance proposed is 5s. per week in the case of drivers and conductors and 2s. in the case of cleaners. This decision was reached at a recent meeting of the tramways committee when a deputation was heard in support of the application. The request was for an increase of 6s., and was made through the local branch of the Amalgamated Association of Tramwaymen & Vehicle Workers. Prior to hearing the deputation the committee considered a report on the relative rate of wages paid to tramway employees in other towns in Scotland. Only in Glasgow are the men better paid than those of Dundee. The decision was unanimous. The increase is granted on a fifty-four-hour week and makes the minimum and maximum rates as follows: Drivers, 35s. to 39s.; conductors, 31s. to 37s.; cleaners, 32s. to 34s., exclusive of 5s. extra for a sixty-hour week.

Interesting information is set forth in the annual report of the Nottingham tramways committee. While there was an increase of £7,762 in the total receipts last year, the expenditure also increased by £17,450, due chiefly to car repairs, war bonuses and separation allowances. There was a reduction of 118,911 in the number of miles run by the cars, yet the passengers carried totaled 1,739,726 more than the previous year. The number of penny tickets issued was 30,115,111, workmen's penny tickets 4,028,572, halfpenny ordinary tickets 4,028,572 and three-halfpenny ordinary tickets, 3,748,623. The depletion of the staff and inability to secure necessary supplies caused great difficulty in meeting the traffic requirements. Since the commencement of the war 305 men have joined the colors. Of these twelve have given their lives for their country. One motorman and one conductor have been awarded the military medal for conspicuous bravery at the front. Upward of 100 men have also left the service for munitions and other work.

The twenty-seventh annual delegate meeting of the Amalgamated Association of Tramway & Vehicle Workers was held at Leicester during the month of May. It was stated that one of the difficult problems that the society had to consider was the question of women tram drivers. The hope was expressed that the members in every town would oppose the introduction of women, and that where circumstances were too strong for them successfully to resist the innovation, the members would insist on the same rate of wages being paid to the women as to the men. The position taken by the Board of Trade and the Ministry of Munitions was that there could be no interference on the part of the authorities until it was demonstrated that the employment of women drivers was a danger to the public. The conference passed a resolution that in view of the dangers attending the introduction of women drivers the Council should take definite action, and that there were sufficient discharged soldiers and sailors capable of the work if the maximum rate of the town were paid.

Edinburgh magistrates have considered the further renewal of licenses for the cable cars in Edinburgh. Reports were submitted by the burgh engineer and the hackney carriage inspector which showed that, despite the fact that the company was very badly handicapped by the lack of material and men, considerable improvement had been made in the running plant. The tramway asked that the licenses should now be granted for one year, as formerly. The magistrates decided, however, to limit the licenses to three months, as they had been doing more recently.

It is expected that as a result of the scheme submitted to the Middlesex County Council recently, fares will be increased on the Metropolitan Electric Tramways, Ltd., at an early date. Since 1911 the company has not yielded any divisible profit, and there has been a steady increase in the amount by which capital charges and working expenses have exceeded the receipts, owing to increased competition and a steady rise in the cost of operation. It is further estimated that the war bonus to employees, recently asked for, would add £30,000 to the bill for wages. A. C. S.

News of Electric Railways

Traffic and Transportation

Financial and Corporate | Personal Mention | Construction News

St. Louis Settlement Terms

First Joint Conference Between City and Company Representatives Results in Publication of Proposal of the City

The first joint conference on a tentative plan to compromise the United Railways mill tax was held on June 26 in the office of Mayor Kiel of St. Louis, Mo. The five members of the United Railways committee, headed by Richard McCulloch, president, conferred with the city's committee headed by Mayor Kiel. Eight proposals were submitted to the joint conference committee by City Counselor Daues, as forming the basis of a possible agreement between the city and the United Railways. They represent the city's reply to the company's proposals of last November. The list of proposals is as follows:

WHAT THE CITY PROPOSES

1. The mill tax ordinance shall be repealed on the date when the new agreement becomes operative, and shall be paid in full, with accrued interest, up to that time.

2. For the accrued mill tax and interest to be paid the city, the company may issue bonds and add the amount to its capital valuation on which a reasonable return may be earned in future. The bonds are to be retired by amortization within a term of years to be fixed.

3. New indeterminate franchises, subject to the provisions of article 19 of the charter, shall be granted to the company. The city shall have the right to acquire the company's property, paying for it in municipal 4-per cent bonds, at the end of the first ten-year period, or the end of any five-year period thereafter, as provided in the charter. The franchises shall be for a term ending in 1948, or for fifty years, the limit fixed by the charter for the life of a franchise.

4. The board of directors to consist of twelve members, of whom —— shall be city officials, the railway to elect qualifying shares to and elect on the board of directors —— city officials, who shall be ex-officio members.

5. The management of the company to be under a board of control, consisting of the president or acting manager of the company and the director of the public utilities of the city, or his commissioner or deputy, said board to decide also on all necessary rearrangements, extensions, additions and improvements to be made by the company as fast as required and as the earnings permit. All difficulties and disagreements between the members of the board of control to be adjusted by arbitration. A third member to be appointed by the St. Louis Court of Appeals in the event of a disagreement. All official salaries and expenses to be subject to the approval of the board of control.

6. The city and company to agree on a fair capital value on which the company shall be permitted to earn a return of —— per cent, which shall be cumulative. The company also to be permitted to earn a reasonable return on sums expended for extensions, additions and betterments, to be determined by accounting methods set out in the ordinance.

7. All earnings shall be disposed of as follows: (a) Operating expenses, including accident reserve, depreciation funds and taxes. (b) A percentage, to be fixed, on capital valuation. (c) Surplus after providing for (a) and (b) to be divided between city and company on a percentage basis to be fixed, or applied to the improvement of transportation.

8. An ordinance containing these provisions shall be passed by the Aldermen and accepted by the company.

The committee which considered the matter on June 26 consisted of five members of the city government and five representatives of the company. At the opening of the meeting Mr. Daues expressed the hope that the plan would be adopted. It was first intended that the protocol should fix the company's new capitalization at not more than $60,000,000, and that the rate of earnings on this amount should be 6 per cent, with a further provision that the net surplus be divided in the proportions of 60 per cent to the city and 40 per cent to the company. In a preliminary conference between Counselor Daues and Attorney Thomas M. Pierce, for the company, these specific conditions were omitted, and it was decided to refer them to a joint committee of four, two members to represent the city and two the company. In addition the questions of the number of directors and the manner of paying the mill tax also were left open. The first proposition that the city should have four officials—the Mayor, comptroller, president of the Board of Aldermen and director of public utilities—as directors of the company, was not urged very strongly at the conference. The Mayor suggested that the chairman of the Aldermanic public utilities committee be included in the directorate, but this was disapproved by Mr. Daues. President McCulloch of the company held that as the city wanted "only representation on the company's board, and not control," three officials would be as good as four or five to protect the city's interests. He urged that only the three elective officials be named.

Mr. Daues said that he thought the company ought to be allowed to earn 6 per cent dividends, and that an additional 1 per cent of earnings might be allowable for extensions and improvements. He said that he believed a fifty-year franchise was necessary to get best results, and that the city had no power, under a recent Supreme Court decision, to fix the rate of fare by ordinance. The Supreme Court, he pointed out, decided that the rate-making power rested solely with the Public Service Commission.

The joint conference was to meet again on July 6.

Mr. Beeler Retained in Boston Case

He Will Report to Massachusetts Commission in Connection with Boston Elevated Revenue Case

John A. Beeler has been retained by the Public Service Commission of Massachusetts under Chapter 373, acts of 1917, to assist the board in studying the revenue problem of the Boston Elevated Railway. The commission is to report to the next Legislature whether the existing 5-cent fare contract between the company and the State should be altered on behalf of affording the company increased net revenue. Mr. Beeler will investigate the possibilities of increasing the net revenue and was selected by the board because of his extended experience as a street railway manager. He was formerly vice-president and general manager of the Denver (Col.) Tramway and has lately devoted his entire time to consulting work in connection with public utility problems and has recently completed a report upon operating methods on the Bay State Street Railway. Mr. Beeler's office is at 52 Vanderbilt Avenue, New York City. His report on the Boston Elevated case will be submitted to the commission in the early fall.

Mr. Beeler, who has established himself in New York as a consulting engineer, resigned from the Denver Tramway in September, 1915. He was born in Towanda, Ill., on June 28, 1867, and entered street railway work in Cincinnati in 1886. His connection with the railways in Denver dated from 1888. Mr. Beeler was among the first to adopt a double-truck trail car for handling rush-hour loads or peak traffic. He also introduced a number of other features that created much interest in the railway field. One of these was the employment of student conductors, selected from local universities and high schools, to man the trailers operating during the periods of heaviest travel.

Philadelphia Legislation Lost

Measures Sought by the City and Opposed by the Philadelphia Rapid Transit Company Not Passed in Legislature

The program of rapid-transit legislation sought by the city of Philadelphia has been lost in the Legislature. The whole matter was tied together in four bills, the provisions of which have been reviewed previously in the ELECTRIC RAILWAY JOURNAL. Briefly these measures sought to give the city the power to take over the lines of the Philadelphia Rapid Transit Company by exercising the right of eminent domain, compensation to be fixed by the Public Service Commission; a constitutional amendment increasing the city's borrowing capacity so as to provide this compensation, and the so-called Salus bill to provide through routing of the city's lines on the Philadelphia Rapid Transit Company's lines and also to empower the commission to decide the question of fares and transfers.

The fight on the measures was a hot one. In the closing hours A. Merritt Taylor, former director of the department of city transit, issued a statement in which he "scotched" the resolution backed by Mayor Smith. On the other hand the Mayor threatened reprisals and is said to be looking toward independent operation of the rapid-transit lines now under construction. He has, however, signed the ordinance recently passed by Councils which empowered the city to draw another lease and submit it to the Philadelphia Rapid Transit Company. In the first flush of his disappointment at the loss of the so-called Salus bill the Mayor pilloried the entire electric railway interests of the State. He is quoted as follows:

"The united power and influence of all the street railway interests of the State were exerted to defeat the Salus bill. Whole delegations were turned away from us through telegrams which reached them to-day.

"Before we arrived at Harrisburg to-day (June 27) I am certain that we had votes enough to carry the bill, but as it developed, we were eight votes short of a constitutional majority. This change, to my mind, was wholly brought about because of the coercion of the street railway interests of the State working together."

Dallas Deal Delay

Messrs. Strickland and Hobson Secure Extension of Time in Which to Consolidate Electric Railway and Lighting Services

The city of Dallas, Tex., has extended for a period from July 2 to Sept. 27 the time in which J. F. Strickland and C. W. Hobson, to whom were granted the service-at-cost franchises for operation of electric railways and electric lighting plants in Dallas, may carry out their agreement to consolidate the present lines under the companies which they propose to organize. The extension was granted at the request of Messrs. Strickland and Hobson, and after the favorable action had been taken by the City Commission, Messrs. Hobson and Strickland gave out the following statement to the public:

"We regret we were obliged to ask for an extension of time in which to accept the light and street railway franchise ordinance, but the delay incident to the litigation involving the validity of said ordinances made it imperative. The things necessary to be arranged preliminary to the acceptance of said franchises are numerous and time-consuming, and some of them could not be undertaken so long as the validity of said franchise ordinances was involved in litigation.

"This litigation has but very recently reached a conclusion, and the time since then has been entirely inadequate for arranging a matter of such magnitude and detail. An extension has been asked and granted until Sept. 27, 1917, but this does not necessarily mean that acceptance will be postponed until that time, for we shall push matters diligently and will not delay any longer than is actually necessary. It must be remembered that the transfer of the properties in question is one that requires very considerable time and that both properties must be transferred, as the transfer of one without the other would be of no avail."

New York Men Present Demands

Committee of Third Avenue Railway Employees Seeks Conference with Management on Wages and Other Matters

A committee of four employees of the Third Avenue Railway, New York, N. Y., on July 4 sent the following letter to Edward A. Maher, president of the company:

"We, the undersigned committee representing the employees of your company, have been instructed by your employees to submit to you the following requests:

"First—We request that the company, through its accredited officers, will meet and treat with the committees and representatives of the men on all grievances and complaints that may arise in the future.

"Second—We request that the wages for motormen and conductors on and after July 10, 1917, shall be as follows: For motormen and conductors, first year in service of the company, 35 cents an hour; for motormen and conductors who have been one year or over in the service of the company, 40 cents an hour.

"Third—We request that the workday for motormen and conductors shall be on the basis of a maximum of ten hours, to be completed in twelve consecutive hours, and that time and one-half be paid for all work after the completion of the regular scheduled run as above provided.

"We would request that you set a date and name a place where we can take up with you, as the representatives of the employees, these questions."

The letter was given out for publication by William B. Fitzgerald, general organizer of the Amalgamated Association of Street & Electric Railway Employees of America. He stated that since it had become known that demands would be made the company had circulated among its men a petition to the effect that the men were satisfied with the new scale of wages established on July 1. This scale raised the pay of a man who had been in the employ of the company for six months from 27 cents to 30 cents an hour; the pay of the man who had been with the company for more than a year to 32 cents, and the pay of a man who had been in the company's employ for fifteen years to 34 cents an hour. At the time of the strike in New York about a year ago the demands submitted were for 30 and 33 cents, as compared with 35 and 40 cents in the new demands.

Mr. Maher, president of the road, gave out a statement on the night of July 4 explaining his reasons for not choosing to treat with the committee of four appointed by the union and said that the men had been dismissed from the service of the company for their action in rejoining the association. Mr. Maher said he knew that the men appointed did not represent the employees of the Third Avenue Railway, but that they represented an association that had no regard for "its obligations, contracts or promises."

The Amalgamated is said to be looking first toward the unionization of the men on the Third Avenue lines with the end in view of calling a strike there. The Third Avenue Railway has replied to the committee which presented the demands to it by discharging the men on the committee.

The brotherhoods organized after the strike last year on the lines of the Interborough Rapid Transit Company and the New York Railways passed resolutions on July 5 denouncing the leaders of the Amalgamated and condemning any proposal to force a strike at this time. Copies of these resolutions were sent to the Mayor, Public Service Commission, United States District Attorney and district attorneys of New York and Bronx Counties. The resolutions adopted by the Interborough lines quoted President Wilson's proclamation to the men who run the railways, reviewed the attempt made last fall to interrupt service on the Interborough lines, called attention to the dynamiting of the subway during the last strike and the convictions that followed, and concluded with the demand for "all of our rights to carry out our obligations to the community and to the nation peaceably and without interference." The resolution adopted by the brotherhoods of the employees of the New York Railways were along similar lines. Committees of the brotherhoods of both companies called on officials of the companies and told them that they were satisfied with the conditions and wages which now prevail.

Ten Killed in Niagara Gorge

Car of Niagara Gorge Railway Drops Into Gorge Near the Whirlpool Rapids

Heavy rains undermined a section of track on the Niagara Gorge Railway about 50 ft. south of the cantilever bridge at Niagara Falls, N. Y., and a large double-truck open observation car carrying between fifty and sixty-five passengers running upon this stretch of roadbed on the afternoon of July 1 toppled down a 30-ft. embankment into the lower gorge of the Niagara River. Three days after the accident ten known dead and thirty-one injured had been accounted for by company officials, but estimates disagree as to the number of missing. The register was not recovered in the wreckage. The motorman of the car jumped and was saved, but the conductor was lost.

The Niagara Gorge Railway operates the double-track electric line in the lower American gorge between Lewiston and Niagara Falls. This route with the line of the International Railway between the upper steel arch bridge at Niagara Falls, Ont., and Queenstown, Ont., constitutes the Niagara Gorge belt line. On the day of the accident cars were being operated under a fifteen-minute headway. The route of the railway winds in and out among the large rocks in the lower gorge, and for a great part of the distance the roadbed is supported upon a bed of concrete. Every morning before regular travel is started over the line a pilot car is sent over the route to report on the condition of the track and roadbed.

Soldier Sounds Alarm

About twenty minutes before the accident, a soldier guarding the lower abutments of the Cantilever and Lower Steel Arch bridges saw part of the roadbed under the track slip into the gorge. Realizing the immediate danger, he telephoned officials of the Niagara Gorge Railway of the undermined track and the company's inspector at Lewiston was advised not to allow any more cars pass that point. One car was then between Lewiston and the point of the wash-out. A special Gorge Route car started from Niagara Falls, N. Y., with company officials and others, but when they arrived the regular car had reached the danger point and had fallen into the river. When the car ran upon the undermined track, it toppled toward the river and fell bottom side up onto submerged rocks and again tipped over into the river. Before the car took its first somersault, the motorman leaped and several passengers jumped. Others were hurled into the gorge and some are said to have been carried down the river into the Whirlpool only a short distance below.

National guardsmen jumped into the river with ropes tied about their bodies and rescued a number of passengers. Several others were pulled from the wreckage an hour after the car fell from the rails. Special cars carried the dead and injured to Niagara Falls. The International Railway sent a wrecking car to the scene of the accident and hauled the trucks and floor of the car from the river, but the roof and other parts of the car were carried down the river into the Whirlpool.

Burt L. Jones, vice-president and general manager of the Niagara Gorge Railway, was on the scene within twenty minutes after the accident. In a statement to the newspapers, Mr. Jones placed the responsibility for the accident upon the soldier who saw the roadbed slide into the river because he did not rush down upon the tracks and flag all approaching cars. City officials of Niagara Falls, N. Y., also placed some blame upon the soldiers for not making an effort to stop the approaching car by firing a gun or giving some other sign of warning.

Two investigations are being made into the accident. One is being conducted by the Niagara county authorities and the other by the Public Service Commission for the Second District through Charles R. Barnes, its electric railway inspector. At the investigation before the county authorities, officials of the Niagara Gorge Railway were asked why power was not shut off immediately warning of the washout was received. The superintendent of the company and its general manager said that the time between the warning and the accident was too short for them to stop the approaching car.

Twenty-four hours after the accident the undermined track had been repaired and regular traffic was resumed over the entire route from Lewiston to Niagara Falls.

M. O. Agitation in New York

Tammany Will Seek to Capitalize Present Plight of Utilities by Promising to Fight for Municipal Ownership

Tammany Hall came out on July 1 for a municipal ownership platform in the present New York City municipal campaign. A statement issued by the Democratic County Committee, which includes its proposals for incorporation in the Democratic Fusion platform, says:

"The supply of transportation, light, heat and power is of the utmost importance to the community. The services rendered have become a necessity to the life, health, comfort, convenience and industry of the city. These great services are monopolies, and whatever is of necessity a monopoly should be a public monopoly, especially where it offers a service of universal use. Thus only can the cost of these indispensable public services be reduced to the cost of similar services in more progressive cities, and thus only can the selfish resistance of the public utility corporations be made to give way to a progressive development of the city in the interest of the people.

"We oppose the further granting of franchises for public utilities. The prodigality with which these public assets in the past have been given or bartered away for inadequate consideration explains the penury of New York City.

"The present city administration was elected on pledges that the city government would be conducted on progressive lines, in the interest of the citizens as a whole and not of special privilege. These pledges have been forgotten or ignored, and the Fusion administration has steadily pursued a course of obsequious deference to the public utility corporations and predatory and privilege seeking business.

"New York City faces the enlightened demands of the present day for a scientific extension of municipal function with a depleted treasury and an exhausted borrowing power, while there is not a valuable privilege or franchise, an immunity or a power of extortion sought or proposed by the public utility corporations of the city which has not found in the present Fusion administration eager and artful advocates and apologists. The city's revenues have been wasted in ill-considered and improvident undertakings, which today stand as costly and futile commitments without possibility of completion."

On July 3 the newspaper men at the City Hall pressed Mayor Mitchel for a statement in regard to his views on municipal ownership. He is reported to have answered:

"I think now as I have always thought. I have always been in favor of municipal ownership in many fields. Particularly was I in favor of it in the subway matter. I should like to see the city acquire the electrical subways (conduits). If we only had the money we might do it tomorrow. And it may be, before we get through, that we will have the money."

On the same day Public Service Commissioner Hervey also had something to say about municipal ownership. His remarks were taken as indicating the sentiment of at least a majority of the commission. Mr. Hervey said in part:

"The representatives of at least two of the surface railway systems of the city have declared that unless they are granted new sources of revenue they will be forced into the hands of receivers, with consequent inconvenience to the public through the disintegration of their systems. Those statements become increasingly important in view of the threat of renewed labor strikes on the lines of the companies and with the at least coincident revival of municipal ownership as a local political issue.

"It would be unfortunate, in view of the large measure of control of the situation possible under the present laws, if the public should get the impression that its only protection was through municipal ownership of these roads. If we are going to have municipal ownership, let us begin by acquiring those public utilities which are making great profits out of the public and not those which their own managers declare are on the verge of bankruptcy."

Truce in Seattle

Difference Between Employees and Company to Be Arbitrated—President Leonard Reviews Situation Confronting Company

A truce was declared on June 26 following several conferences between representatives of the Puget Sound Traction, Light & Power Company and the employees of the Seattle division, and arbitrators were appointed by the company and the union to consider the matters that had previously made a strike seem likely. C. J. Franklin, a consulting engineer of Portland, Ore., formerly general superintendent of railways of the Portland Railway, Light & Power Company, was named by the company as its choice for one of the three members of the arbitration board before which will be submitted the claims of the employees for better wages and shorter working hours. James A. Duncan, secretary of the Seattle Central Labor Council, was appointed by the representatives of the employees as their choice as arbitrator. Mr. Franklin and Mr. Duncan will appoint the third member of the board. The board will then organize and begin the hearings. The decision of the arbitrators will be binding upon both sides to the arbitration, for a period of one year.

A. W. Leonard, president of the company, says that a schedule of increases asked by the employees will be submitted to the board of arbitrators. Negotiations on behalf of the employees are being conducted by the officers of Local 587 of the Amalgamated Association of Street & Electric Railway Employees of America, first organized in Seattle in 1912, and comprising, it is stated, 1000 employees of the company. President Leonard, Vice-President McGrath, and Manager Kempster represented the company at the conferences held with the employees.

What the Men Demand

The present situation had its beginning, it is asserted, on June 20, when twenty-seven platform men signed a petition for membership in the Seattle division of the Amalgamated Association. The subsequent suspension of these men by the company is alleged by the employees. On June 21 a committee of trainmen called on President Leonard of the company, made certain requests regarding wages and working conditions, and set June 23 as the time for reply. On June 22 the company voluntarily advanced the wages of all its trainmen, the third time since the first of the year. On June 23 the committee was invited to President Leonard's office for a conference. At this meeting the trainmen presented the following requests: That all platform men receive 37½ cents an hour during the first year, and 40 cents an hour after that; that the workday be reduced to eight hours in eleven consecutive hours; that time and a half be paid for all time served in excess of eight and one-half hours; that extra men, those just breaking in or those who are substituting without regular runs, be paid $75 a month.

President Leonard's Statement

In a statement which he made, President Leonard said:

"We were asked to arbitrate certain requests made by a committee of our employees. The arbitration the men ask for they specifically stated was that provided for in the franchise under which we are operating in Seattle. We expressed our willingness to arbitrate the questions submitted. The franchise provides: 'That if any dispute shall at any time arise between the said grantees, their successors or assigns, and their employees as to any matter of employment or wages, such dispute shall be submitted to arbitration. The grantees, their successors and assigns, and their employees, shall be parties to any submission and shall be entitled to be heard by the arbitrators, and any award when made shall be made binding and conclusive for the period of one year from its date, upon the grantees, their successors and assigns, and upon their employees.'

"Observance of that provision will protect the public against unnecessary or embarrassing loss of service. On June 21 the committee presented its requests. No answer was given at that time. The appearance of the committee at the executive office of the company followed our announcement of a 2-cent an hour raise in wages and a reduction from ten to six years in the period of service within which the maximum wage is reached. The committee returned on June 23 and asked if we would arbitrate as provided in our franchise. The members were assured that we would do so, and we were immediately called upon by a second committee, with written demands for the very arbitration to which we had already consented.

"The matters in question are requests for a shorter day and a higher rate of pay per hour, together with a guaranteed wage for extra men, and the reinstatement of several suspended men. The request that the suspended men be reinstated was acted upon as soon as it was decided that arbitration would be granted.

Company Realizes Changed Conditions

"The company has always stood behind its loyal men, and these men can depend upon us to continue to stand behind them. We realize that living conditions have changed and we have done what we could to help meet those changed conditions by making three wage increases in six months. In addition to the wages paid, we give free tickets to trainmen and their families, the latter provision being extremely unusual. The increases announced have added more than $140,000 to our annual payroll. All equipment and material that we use costs us from 50 per cent to 450 per cent more than it did before 1914, but we are still furnishing 7 and 8-cent rides for the same nickel, a nickel that has shrunk to 2½ cents in its diminished purchasing power.

Making a Political Issue of the Company

"We have been harrassed, embarrassed and annoyed in every conceivable manner by those who have sought to make a political issue of this company. Unfair and illegal competition has been permitted with a view to crippling us financially, but we have continued to work under these handicaps, believing that ultimately a sense of fair play and justice will prevail in this community."

It is understood that the shop men in the employ of the company are to be taken into the union. The requests with respect to the shop men, tentatively agreed upon, are an eight-hour day in all cases and an advance from the present pay of $2.75 a day to $3.50, and $4 a day in case of machinists.

Terminal for Los Angeles

California Railroad Commission to Consider Matter of a Union Passenger and Freight Railroad Terminal

The question of establishing a union passenger and freight railroad terminal in Los Angeles will be considered by the Railroad Commission of California sitting *en banc* in Los Angeles on July 24. The Supreme Court of the State recently gave the commission undisputed jurisdiction over railroad crossings, both within and without incorporated municipalities. This jurisdiction had been opposed by the Los Angeles city attorney, who claimed that while the commission had complete authority over union terminals in Los Angeles, it did not have control of grade crossings within that city.

The decision has eliminated the opposition and the commission has promptly laid plans for complete investigation of the demands which are being made for the consolidation of Los Angeles railroad terminals. The case carries with it both freight and passenger service, includes all steam roads entering Los Angeles, and the question of how crossings shall be protected throughout the city. The case is formally known as the complaint of the Municipal League, the Central Development Association and the Civic Center Association of Los Angeles, and the cities of Pasadena, Alhambra, San Gabriel and South Pasadena against the Southern Pacific, the Pacific Electric, the Santa Fé and the Salt Lake Railroads.

The applicants have asked the commission to require the railroad companies to build a union terminal, and to reconstruct their tracks running to and from the terminal so as to eliminate grade crossings, which are the cause of death and injury.

Dayton Strike Settled

The sixty-six striking motormen and conductors of the Dayton (Ohio) Street Railway returned to work on June 28, after a conference with W. A. Keyes, president of the company, and W. L. Smith, general manager, and Mark Crawford, representing the Department of Labor. Chris Cline, who organized the local branch of the union among the men, joined with the executive committee in recommending a settlement. The terms of the settlement were not made public, but it has been stated that the company agreed to meet and deal with committees appointed by the union in case of disagreements, without a formal recognition of the organization. Apparently both sides made concessions. The strike was called on June 16 after the company had refused to recognize the union and yield to some other demands.

Berkshire Strike Conference

A conference was held at Springfield, Mass., on July 2 between representatives of the employees of the Berkshire Street Railway and President L. S. Storrs regarding wage conditions. C. Q. Richmond, general manager of the company, was also in attendance. Union representatives have threatened a strike on this property unless the demands of the men now before the management are granted. The company has offered substantial increases and has asked for sufficient time to allow it to apply to the Public Service Commission of Massachusetts for an increase in fare. At the conference the hope was expressed that the company and the men might be able to come to terms without a strike. No statement was made as to the result of the conference, except that it was agreed among the parties that further consideration of the wage question would take place at Pittsfield later in the week through conference with Mr. Richmond.

Lake Shore Advances Wages.—Motormen and conductors on the Lake Shore Electric Railway, Cleveland, Ohio, have been granted a voluntary advance in wages of 2 cents an hour. The minimum has been advanced from 27 cents to 29 cents and the maximum from 33 cents to 35 cents. Other employees received a proportionate increase.

Franchise Approved in East Cleveland.—The City Council of East Cleveland, Ohio, has approved a twenty-five-year franchise to the Cleveland Railway with a rate of fare of 5 cents in cash or six tickets for a quarter for passengers traveling to and from Cleveland, and 3 cents within the limits of East Cleveland. The franchise will be submitted to a referendum vote on July 31, and if it is approved will become effective at once. The company is to pave its portion of the streets, extend the Superior Avenue line to Euclid Avenue and build a crosstown line.

Strike Settled in Steubenville.—Motormen and conductors reached an agreement with the Steubenville, Wellsburg & Weirton Railway, Steubenville, Ohio, on June 30, after having been on a strike for two weeks. They accepted an increase in wages of from 2 cents to 4 cents an hour, with a maximum of 34 cents an hour, although they had demanded 40 cents an hour. W. L. Chambers, federal mediator, spent some days in an endeavor to bring about a settlement, but left for Washington on June 28, after apparently exhausting all efforts. Cars were not operated during the strike.

Increase in Wages in Lexington.—An increase of 1½ cents an hour in wages paid the motormen and conductors of the city and interurban lines of the Kentucky Traction & Terminal Company, Lexington, Ky., became effective on July 1. The increase is the result of the operation of the co-operative plan agreed on a year ago between the company and its employees. Under this agreement a percentage of the gross earnings is placed in a fund from which the expense of maintenance and damage claims are paid and the balance distributed in increased wages to the men.

Municipal Railway Favored in Lincoln.—Citizens of Lincoln, Ill., have expressed themselves overwhelmingly in favor of a municipal street railway for the city. At a recent election a bond issue of $30,000 was voted, the proceeds of which will be used to purchase the old railway plant of the Lincoln Railway & Heating Company, which has been idle for a number of months, and to rehabilitate the same and place it in operation. The property lost money as a private venture and after disagreement with the Council of Lincoln the State Public Utilities Commission authorized the company to suspend operations.

Franchises Surrendered for Commission Permits.—The Louisville & Southern Indiana Traction Company, the Louisville & Northern Railway & Light Company, together with the United Gas & Electric Company, serving a number of communities in southern Indiana opposite Louisville, have served notice that they are surrendering city franchises in the towns in which they operate and will hereafter operate under direction of the Indiana Public Service Commission. The city railway service in New Albany and Jeffersonville will continue as at present and the county franchises will not be given up, for the time being.

Wage Conferences Continue in Rhode Island.—Conferences between representatives of the car men's union and officials of the Rhode Island Company, Providence, R. I., are continuing, almost every day, and a new agreement to take the place of the one which ended on May 30 is likely to result. The document submitted by the union is a lengthy one, and it is being argued section by section. A tentative schedule for the platform men has been reached by the conferees, who are now engaged in working out a new scale for the men in the mechanical departments. By mutual agreement the old contract remains in force until a new one is adopted. Any increase will date back to June 1.

Another New York Subway Connection Opened.—The Interborough Rapid Transit Company, New York, N. Y., on July 1 put in service the new West Farms subway connection between the Second and Third Avenue elevated railroads in the Bronx and the West Farms branch of the first subway. The connection extends through private property, Willis and Bergen Avenues, from 143d Street to the elevated portion of the subway. Actual operation began on July 2 under direction of the Public Service Commission for the First District when some twenty Second Avenue elevated express trains originating at Freeman Street were placed in service by this route. The new connection will relieve congestion at the 149th Street elevated station.

Increase in Pay in Denver.—Trainmen employed by the Denver (Col.) City Tramway have voted to accept the company's offer of an increase in wages of 3 cents an hour. About 900 men are affected by the raise in pay. The vote to accept the offer was taken at a meeting held on June 24. This offer was made by the company several weeks ago, along with an offer of a similar increase in all other departments. Employees in other branches accepted, but action was deferred by the trainmen. The decision to accept means that $102,000 will be added to the annual expense of the tramway. The Denver men have a brotherhood of their own. Some time ago the men, through the brotherhood, appointed a committee to confer with the officers of the company with respect to wages.

Increase in Wages in Tacoma.—The Tacoma Railway & Power Company, Tacoma, Wash., and the Pacific Traction Company, operated by Stone & Webster, under the supervision of the Puget Sound Traction, Light & Power Company, Seattle offices, announced that the following scale of wages would become effective on July 1 for the trainmen of these companies: Passenger and freight motormen and conductors, first six months, 26 cents an hour; second six months, 27 cents; second year, 28 cents; third, 29 cents; fourth, 30 cents; fifth, 31 cents, and sixth year and thereafter, 33 cents. Freight brakemen: 27 cents; one-man car operators, in addition to above scale, 2 cents; gripmen, in addition to above scale, 1 cent. The trainmen's wage scale which went into effect on June 1 was as follows: First year, 25 cents; second, 26 cents; third, 27 cents; fourth, 28 cents; fifth and sixth, 29 cents; seventh and thereafter, 31 cents. Additional amounts were granted for gripmen, student instructors and one-man car operators. The employees of the Tacoma Railway & Power Company and the Pacific Traction Company have received three increases in pay since Dec. 1, 1916. The second increase was granted on June 1, this year.

Financial and Corporate

Annual Reports

Lake Shore Electric Railway System

The comparative income statement of the Lake Shore Electric Railway. System (comprising the Lake Shore Electric Railway, the Lorain Street Railroad, the Sandusky, Fremont & Southern Railway, the People's Light & Power Company, and the Bellevue Illuminating & Power Company) for the calendar years 1916 and 1915 follows:

	1916		1915	
	Amount	Per Cent	Amount	Per Cent
Gross income	$1,618,551	100.00	$1,387,143	100.00
Operating and taxes	1,022,712	63.20	898,136	64.70
Net	$595,839	36.80	$489,007	35.30
Interest paid	436,647	26.96	433,202	31.25
Surplus	$159,192	9.84	$55,804	4.05

According to the foregoing table, the gross income of the whole system in 1916 increased $231,408 or 16.6 per cent. The operating expenses and taxes rose $124,576 or 13.9 per cent, so that the net gained $106,832 or 21.8 per cent. Interest showed a slight increase, but the surplus for the year was almost tripled.

The gross earnings of the Lake Shore Electric Railway, the largest one in the system, increased $155,192 or 14.14 per cent in 1916, this comparing with a decrease of $23,286 or 2.07 per cent in 1915. In 1916 the passenger revenues rose $122,065 or 13.5 per cent, and the freight revenue $26,418 or 23.4 per cent. The operating expenses and taxes in 1916 increased $84,540 or 11.7 per cent. This company expended $63,694 out of the total of $72.113 for additions and improvements in 1916.

Miscellaneous statistics for the various parts of the system follow:

LAKE SHORE ELECTRIC RAILWAY

	1916	1915	Increase
Operating ratio (per cent)	64.18	65.55	*1.37
Car-miles	3,518,305	3,361,869	156,436
Income per car-mile (cents)	35.59	32.63	2.96
Oper. and taxes per car-mile (cents)	22.84	21.39	1.45
Net earnings per car-mile (cents)	12.75	11.24	1.51
Passengers carried	5,768,899	5,210,750	558,149
Earnings per passenger (cents)	18.00	17.57	0.43

LORAIN STREET RAILROAD

Operating ratio (per cent)	62.90	69.34	*6.44
Car-miles	676,683	559,678	117,005
Income per car mile (cents)	30.35	26.83	3.52
Oper. and taxes per mile (cents)	19.09	18.60	0.49
Net earnings per car mile (cents)	11.26	8.23	3.03
Passengers carried	3,563,829	2,543,530	1,020,299
Earnings per passenger (cents)	5.76	5.90	*0.14

SANDUSKY, FREMONT & SOUTHERN RAILWAY

Operating ratio (per cent)	66.22	71.50	*5.28
Car-miles	237,849	229 781	8,068
Income per mile (cents)	39.00	33.37	5.63
Oper. and taxes per mile (cents)	25.81	23.86	1.95
Net earnings per car mile (cents)	13.19	9.51	3.68
Passengers carried	337,602	299,746	37,856
Earnings per passenger (cents)	25.54	24.29	1.25

*Decrease.

Honolulu Rapid Transit & Land Company

The outstanding feature of the operations of the Honolulu Rapid Transit & Land Company, Honolulu, T. H., for 1916 was the growth in traffic over the whole system. The passenger revenue increased from $575,583 in 1915 to $641,054 in 1916, an amount of $65,471 or 11.4 per cent. This was an increase of nearly $45,000 over the passenger revenue of any other year of operation. The freight revenue in 1916 rose from $9,350 to $13,440, and these increases with other slight changes made a total increase of $69,332 in the revenue from transportation. The gross revenue from operation at $669,981 showed an increase of $70,417 or 11.8 per cent.

The operating expense total for 1916 was $355,435, while that for 1915 was $372,411. Thus the expenses for the last year decreased $16,975 or 4.5 per cent. This decrease arose from decreases in maintenance of way and structures, traffic, and general and miscellaneous, with increases in the maintenance of equipment and conducting transportation. The net revenue from operation at $314,546 represented an increase of $87,392. This was cut somewhat by an increase of $30,268 in deductions, so that the net income for the year at $84,313 showed an increase of $57,124.

During 1916 there was expended on account of additions to plant the sum of $27,664. Various comparative statistical data follow:

	1916	1915
Average fare per revenue passenger	$0.0486	$0.0488
Average expenses per fare passenger	0.0264	0.0310
Revenue from transportation per car mile	0.3208	0.2955
Revenue from transportation per car hour	3.0230	2.7480
Operating revenue per car mile	0.3277	0.3020
Operating revenue per car hour	3.0870	2.8090
Operating expenses per car mile	0.1738	0.1876
Operating expenses per car hour	1.6380	1.7450

Washington Railway & Electric Company

The comparative income statement of the Washington Railway & Electric Company, Washington, D. C., and its subsidiaries for the calendar years 1915 and 1916 follows:

	1916		1915	
	Amount	Per Cent	Amount	Per Cent
Gross earnings from operation	$5,539,465	99.5	$5,191,627	99.6
Miscellaneous income	27,509	0.5	22,328	0.4
Gross income	$5,566,975	100.0	$5,213,955	100.0
Operating expenses (including taxes and depreciation)	3,280,486	58.9	3,009,071	57.7
Gross income less operating expenses	$2,286,489	41.1	$2,204,884	42.3
Fixed charges	1,194,035	21.5	1,187,997	22.8
Surplus income	$1,092,454	19.6	$1,016,887	19.5

The gross earnings from operation during 1916 showed an increase of $347,838 or 6.7 per cent, owing to the greater activity in the national capital. Miscellaneous income also increased, but the combined gain was cut to quite an extent by the advance of $271,414 or 9 per cent in operating expenses, taxes and depreciation. The expenditure for maintenance and depreciation in 1916 totaled $955.161 as compared to $921,939 in the year preceding. The fixed charges in 1916 showed a small increase, and the net result for the year was an increase of $75,567 or 7.4 per cent in the surplus income.

The expenditures for construction in 1916 amounted to $832,835, the largest sum since 1912. During the year the cars of the system traveled 11,013,409 miles and carried 90,035,285 passengers, of whom 21,489,744 were free transfer passengers. The average fare per revenue passenger was 4.2887 cents, and the average fare per passenger was 3.2397 cents. The last figure has remained practically constant for sixteen years, in spite of extensions, improvements and higher costs. It would seem that the time has come, the annual report says, when a spirit of fair dealing would suggest that a 5-cent fare is deserved if the system is to be maintained on a scale worthy of the capital.

Delaware & Hudson Electric Lines

The annual report of the Delaware & Hudson Company for the calendar year 1916 states that the revenues of the electric railways in which it is interested were somewhat better during 1916 than during 1915, but that they did not, on the whole, recover sufficiently to regain the level of 1914.

In comparison with 1915, the total operating revenues of the United Traction Company, Albany, N. Y., increased $79,346 in 1916, but were still lower by $55,292 than the total of 1914. The net operating income was $64,417 higher than in 1915, but $241,667 less than in 1914. It is said that the reduced net corporate income of this company (due to (a) the diminished use of its facilities by the public; (b) heavily increased operating expenses resulting from high wages and high prices of materials and supplies, and the reconstruction of equipment compelled by the Public Service Commission, and (c) greatly augmented taxation) has produced a condition which should not be permitted to continue. In speaking of the general strike during Oct. 2-4 in which the arbitration award sustained the company officials, the report states that the wages sacrificed by the employees amounted

to about $4,616 and the direct cost of the strike to the company approximated $5,666.

Compared with 1915, the 1916 operating revenues of the Hudson Valley Railway, Glens Falls, N. Y., increased $60,955, and the increase over 1914 was $10,634. Operating expenses decreased $2,428 below 1915, but exceeded 1914 by $3,606. The net operating income, therefore, was $63,604 more than in 1915, and $839 more than in 1914. The 1916 operating revenues of the Plattsburg (N. Y.) Traction Company exceeded those of 1915 by $6,688 and those of 1914 by $4,712. The operating expenses amounted to $2,707 more than in 1915 and $2,462 more than in 1914, while the net operating income was $3,811 greater than in 1915 and $1,983 greater than in 1914. The 1916 operating revenues of the Troy & New England Railway, Troy, N. Y., increased $1,671 over 1915, but were still $889 less than in 1914. The operating expenses decreased $775 as compared with 1915, but exceeded those of 1914 by $4,644, so that the net operating income increased $2,274 over 1915, but fell $5,624 below those of 1914.

Consolidation Plan at East Liverpool

Application has been made to the Ohio Public Utilities Commission to consolidate the Steubenville & East Liverpool Railway & Light Company, the East Liverpool Traction & Light Company, and the Ohio River Passenger Railway, under the name of the Steubenville, East Liverpool & Beaver Valley Traction Company. The light plants in East Liverpool, Wellsville and Chester, W. Va., are to be sold to a new corporation, the Buckeye Power Company, for which authority is also asked in the application. Temporary directors of this company are B. J. Jones, F. A. Boutelle, A. G. Lee, Paul R. Bowles and J. B. McCullough. The properties are now operated under lease to the Ohio River Power Company. This, it is said, will be continued.

The new railway company will have a capital stock of $9,900,000, as compared with $14,000,000, the combined capital stocks of the old companies. It is also said that there will be a readjustment of the outstanding bonds. The consolidated lines connect Steubenville, Wellsville and East Liverpool, Ohio, and Midland, Pa. The company will also operate the bridge across the Ohio River at East Liverpool.

C., D. & M. Reorganized

Statement of Capitalization of Successor Company—New Securities Approved by the Ohio Public Utilities Commission

The sale of the Columbus, Delaware & Marion Railway to the Columbus, Delaware & Marion Electric Company was confirmed by Judge E. B. Kinkead at Columbus, Ohio, on June 28. The property was purchased at receiver's sale for the new company on June 11 by Ralph H. Beaton for $417,494, subject to the certain mortgages and other claims.

The new company will have outstanding issues: $1,900,000 of 5 per cent bonds; $650,000 of 7 per cent preferred stock and $700,000 of common stock. The bonded debt of $1,900,000 will include $1,533,000 of underlying bonds and $367,000 of first and refunding mortgage bonds of the new company. The reduction in the capitalization of the new company as compared with the old is $2,203,000. All of the new securities, including the common stock, have been approved by the Ohio Public Utilities Commission. The total authorized issue of preferred and common stocks is $1,000,000 each.

Eli M. West, who served as receiver of the old company, will be president and general manager of the new company. Among the directors will be Mr. West, H. J. Catrow, Miamisburg, Ohio; Earl Turner, Dayton, Ohio, and J. J. Bodell and L. C. Gerry, both of Bodell & Company, Providence, R. I.

The Columbus, Delaware & Marion Electric Company operates 60 miles of standard gage electric railway connecting Columbus, Worthington, Delaware, Prospect, Radnor and Marion and also operates the city railway service in Marion and Delaware. In addition it furnishes electric light and power in the city of Marion and energy to the Prospect Electric Light & Power Company and the Columbus, Marion & Bucyrus Railroad. It owns Glenmary Park and its railway lines serve Olentangy Park in North Columbus.

C., D. & T. Property Sold

The property of the Cincinnati, Dayton & Toledo Traction Company was sold at receiver's sale in Cincinnati, Ohio, on June 30 to the bondholders' protective committee at the upset price of $400,000, subject to the underlying bonds. The property was appraised at $2,900,000 and was ordered sold by the Common Pleas Court at a price not less than two-thirds the difference between the appraisement and the equity of the underlying bonds, amounting to $2,300,000. The difference was $600,000, so the price received was exactly the minimum amount. The bondholders' protective committee, which represented about $2,500,000 of the $2,700,000 of consolidated mortgage bonds of the Cincinnati, Dayton & Toledo Traction Company, consists of James M. Hutton, Cincinnati, chairman; Otto Armleder, Leo J. Van Lahr, Edgar Friedlander and Claude Ashbrook.

For some time the road has been operated by the Ohio Electric Railway in connection with its properties. When the sale has been approved it is probable that the committee will endeavor to make some arrangement by which this connection can be continued. If this cannot be done, a new company may be organized to operate it. The line extends from Spring Grove Avenue, Cincinnati, to Dayton, with a branch between Miamisburg and Germantown.

Securities' Association Officers

S. Davies Warfield, President—Several Electric Railway Men on Executive Committee

The officers and executive committee of the National Association of Owners of Railroad Securities, organized on May 23, at a conference held in Baltimore, for the purpose of stabilizing the securities of the carriers by maintaining their credit, were announced on June 30, as follows:

President, S. Davies Warfield; vice-president, Eastern district, Forrest F. Dryden, president Prudential Insurance Company of America; Southern district, T. K. Glenn, president Atlantic Steel Company and a director of the Georgia Railway & Power Company; Central district, John J. Mitchell, president Illinois Trust & Savings Bank; Western district, Charles C. Moore of Charles C. Moore & Company, Inc., engineers, and president Panama-Pacific International Exposition; Southwestern district, I. H. Kempner, president Texas Bank & Trust Company; treasurer, J. Hough Cottman of J. H. Cottman & Company, Baltimore, Md.

Executive committee: S. Davies Warfield, chairman; Charles F. Adams, Boston, Mass.; John T. Baxter, Minneapolis, Minn.; Louis F. Butler, Hartford, Conn.; James E. Caldwell, Nashville, Tenn.; Walter F. Coachman, Jacksonville, Fla.; David R. Coker, Hartsville, S. C.; F. H. Ecker, New York, N. Y.; Crawford H. Ellis, New Orleans, La.; Jacob Epstein, Baltimore, Md.; Henry Evans, New York, N. Y.; William M. Hayden, Baltimore, Md.; Robert Jemison, Sr., Birmingham, Ala.; George K. Johnson, Philadelphia, Pa.; F. J. Kell, Wichita Falls, Tex.; Darwin P. Kingsley, New York, N. Y.; Harold Kountze, Denver, Col.; George C. Markham, Milwaukee, Wis.; Henry A. Page, Aberdeen, N. C.; Walter J. Raymer, Chicago, Ill.; Henry A. Schenck, New York, N. Y.; Henry T. Scott, San Francisco, Cal.; A. L. Shapleigh, St. Louis, Mo.; John G. Walker, Richmond, Va.; Clarence W. Watson, Fairmont, W. Va.; John F. Wilkins, Washington, D. C.; Ernest Woodruff, Atlanta, Ga.; Clifford B. Wright, Cincinnati, Ohio.

Mr. Shapleigh, St. Louis, is a director of the United Railways of that city, and C. W. Watson, Fairmont, W. Va., is a director of the Monongahela Valley Traction Company.

Chicago City & Connecting Railway, Chicago, Ill.—A semi-annual dividend of $1.50 a share has been declared on the preferred participation certificates of the Chicago City & Connecting Railway, payable on July 1 to holders of record of June 23. This compares with $2.25 a share paid in January last.

Cleveland (Ohio) Railway.—The statement of operation of the Cleveland Railway for May shows a net surplus of $30,794, which goes to the interest fund, making a balance of $466,881 in the interest fund on June 1. There was a

deficit of $26,369 in the operating fund due to an increase of 1 cent an hour in the wages of the men on May 1. A surplus of $6,974 in the maintenance fund reduced the maintenance deficit to $19,394. Accident claims cost the company $49,538 as compared with $34,961 for the corresponding month in 1916. The total number of riders for May was 34,409,231, an increase of 7.51 per cent over May last year. The total number of car-miles was 3,092,311, an increase of 7.31 per cent over the corresponding month of 1916.

Duluth-Superior Traction Company, Duluth, Minn.—The Duluth Street Railway, controlled by the Duluth-Superior Traction Company, has purchased the plant and 3-mile line of the Park Point Traction Company on Park Point, which is separated from the rest of the city by the ship canal. The deal was closed at a conference between A. M. Robertson, president of the Duluth Street Railway, and Robert R. Dunn, president of the Park Point Traction Company, in Duluth on June 26. President Robertson announced that his company would take over the operation of the line on July 1 and that a 5-cent fare with free transfer privileges to and from Park Point would go into effect on Sept. 1. The transfer privilege now costs 2 cents in addition to the 5-cent fare. The Park Point line cost $145,475 and there are outstanding $100,000 worth of income bonds and $14,000 worth of mortgage bonds issued in 1913. Mr. Dunn, the president, owned the controlling interest in the company. In 1916 the road was operated at a loss of $48.87.

Jefferson County Traction Company, Beaumont, Tex.—The City Commission of Port Arthur, Tex., has ordered an election to be held on July 10, at which the voters will pass on the franchise sought by the Jefferson County Traction Company, authorizing it to merge its properties with those of the Beaumont Traction Company and Beaumont Electric Light & Power Company, all controlled by the Eastern Texas Electric Company. The merger would simplify intercorporate relations.

Ohio Electric Railway, Cincinnati, Ohio.—The application of the Ohio Electric Railway for authority to issue $100,000 of equipment notes has been approved by the Public Utilities Commission. The company will purchase four motor express cars, sixteen flat trail cars and sixteen box trail cars at a cost of $130,000, the additional $30,000 being paid from the funds in the company's treasury.

Orleans-Kenner Electric Railway, New Orleans, La.—Application has been made for the appointment of a receiver for the Orleans-Kenner Electric Railway by J. D. Purcell, trustee, representing certain of the security holders. The indebtedness of the company to Bertron, Griscom & Company and the plans for local interests through which the road operates to take it over have been referred to in recent issues of the ELECTRIC RAILWAY JOURNAL. In referring to the receivership application the New Orleans *Item* said: "The receivership proceedings are apparently of a friendly nature, and intended to clear up the interurban's difficulties so that a sound method of financing the company may be instituted. Harry K. Johnson, promoter of the road, and Mr. Purcell are the chief owners of the bond issue of $250,000, the greater part of which stands pledged to Bertron, Griscom & Company, New York, for money advanced."

Rochester, Syracuse & Eastern Railroad, Syracuse, N. Y.—The plan of reorganization of the Rochester, Syracuse & Eastern Railroad dated May 18, 1917, prepared by the protective committee representing the holders of the first mortgage bonds, of which committee Arthur W. Loasby is chairman, was declared operative on June 21. A review of the terms of the proposed reorganization was published in the ELECTRIC RAILWAY JOURNAL of May 26, page 977.

Western Ohio Railway, Lima, Ohio.—Because of the expenditure of a considerable sum in the development of its light and power business and the great increase in the cost of fuel during the past six months, the holders of first preferred stock of the Western Ohio Railway were notified recently that the July dividend would be omitted. For the twelve months ended May 31, 1917, the company states that $74,713 remained after the payment of expenses, taxes and interest. This exceeds by a substantial amount the sum required to pay dividends on the first preferred stock. The capital expenditure in power development, however, was $34,336 this year compared with $7,166 last year, but the output of energy increased 18½ per cent. The cost of fuel increased $48,943 or 108 per cent.

Dividends Declared

Athens Railway & Electric Company, Athens, Ga., quarterly, 1¼ per cent, preferred.

Cleveland & Eastern Traction Company, Cleveland, Ohio, quarterly, 1 per cent, preferred.

Columbia Railway, Gas & Electric Company, Columbia, S. C., quarterly, 1½ per cent, preferred.

Columbus, Newark & Zanesville Electric Railway, Springfield, Ohio, quarterly, 1½ per cent, preferred.

Georgia Railway & Power Company, Atlanta, Ga., 2¾ per cent, first preferred.

Monongahela Valley Traction Company, Fairmont, W. Va., 83⅓ cents, preferred; quarterly, 1¼ per cent, common; 1¼ per cent, common, extra.

Montreal (Que.) Tramways, quarterly, 2½ per cent.

National Properties Company, Philadelphia, Pa., 3 per cent, preferred; 2 per cent, common.

Northern Ohio Traction & Light Company, Akron, Ohio, quarterly, 1½ per cent, preferred.

Omaha & Council Bluffs Street Railway, Omaha, Neb., quarterly, 1¼ per cent, preferred; quarterly, 1 per cent, common.

Pine Bluff (Ark.) Company, quarterly, 1¾ per cent, preferred.

Rome Railway & Electric Company, Rome, Ga., quarterly, 1 per cent, common.

South Carolina Light, Power & Railways Company, Spartanburg, S. C., quarterly, 1½ per cent, preferred.

Springfield & Xenia Railway, Springfield, Ohio, quarterly, 1½ per cent, preferred.

United Gas & Electric Corporation, New York, N. Y., quarterly, 1¾ per cent, first preferred.

United Railways & Electric Company, Baltimore, Md., quarterly, 50 cents, common.

Virginia Railway & Power Company, Richmond, Va., 3 per cent, preferred.

West Penn Power Company, Pittsburgh, Pa., quarterly, 1¾ per cent, preferred.

York (Pa.) Railways, quarterly, 62½ cents, preferred.

Youngstown & Ohio River Railway, Leetonia, Ohio, quarterly, 1¼ per cent, preferred.

Electric Railway Monthly Earnings

ATLANTIC SHORE RAILWAY, SANFORD, ME.

Period			Operating Revenue	Operating Expenses	Operating Income	Fixed Charges	Net Income
1m., May,		'17	$14,885	$12,938	$1,947	$431	$1,516
1 "	"	'16	11,194	10,932	262	220	42

HUDSON & MANHATTAN RAILROAD, NEW YORK, N. Y.

1m., May,		'17	$523,146	*$255,109	$268,037	$216,801	$51,236
1 "	"	'16	502,544	*222,629	279,915	219,395	60,520
5 "	"	'17	2,630,660	*1,209,886	1,420,774	1,085,980	334,794
5 "	"	'16	2,484,255	*1,080,135	1,404,120	1,073,376	330,744

NORTHERN OHIO TRACTION & LIGHT COMPANY, AKRON, OHIO

1m., May,		'17	$532,732	$325,646	$207,086	$84,424	$122,662
1 "	"	'16	422,045	210,220	211,825	95,624	116,201
5 "	"	'17	2,553,061	1,543,114	1,009,947	413,783	596,164
5 "	"	'16	1,940,627	936,939	1,003,688	484,609	519,079

PHILADELPHIA & WESTERN RAILWAY, UPPER DARBY, PA.

1 m., May,		'17	$47,777	$23,519	$24,258	$12,527	$11,731
1 "	"	'16	46,011	21,403	24,608	12,528	12,080
12 "	"	'17	531,371	259,117	272,254	150,476	121,778
12 "	"	'16	485,774	232,261	253,513	149,143	104,370

PORTLAND RAILWAY, LIGHT & POWER COMPANY, PORTLAND, ORE.

1 m., Apr.,		'17	$473,358	*$260,594	$212,764	$183,824	$28,940
1 "	"	'16	447,967	*250,968	196,999	181,537	15,462
12 "	"	'17	5,617,994	*3,048,517	2,569,477	2,182,930	386,547
12 "	"	'16	5,458,798	*3,065,985	2,392,813	2,203,132	189,681

TWIN CITY RAPID TRANSIT COMPANY, MINNEAPOLIS, MINN.

1m., May,		'17	$841,764	$531,928	$309,836	$149,942	$159,894
1 "	"	'16	849,056	515,264	333,792	145,206	188,586
5 "	"	'17	4,322,748	2,865,833	1,456,915	730,414	726,501
5 "	"	'16	4,156,224	2,631,142	1,525,082	713,387	811,695

*Includes taxes.

Traffic and Transportation

New York State Fare Hearing

Up-State Commission Discusses Procedure in Case of Twenty-eight Electric Railways Asking an Increase to 6-Cent Fare

The applications of twenty-eight electric railways of New York State, outside of New York City, for an increase in fare from 5 cents to 6 cents were taken up on July 6 by the Public Service Commission for the Second District. The first hearing was devoted to discussion regarding procedure. In opening the railways' case, Joseph K. Choate, chairman of the New York Electric Railway Association special committee on ways and means to obtain additional revenue, outlined the general financial troubles confronting the carriers. He then made the following proposal:

"We ask the commission to set down several days for the consideration of general questions. We ask that the commission set down three consecutive days in each of two weeks, at which time we will introduce proof relating to the rising costs of materials and labor; the effect of these increased costs upon operating expenses; the shrinkage in the purchasing power of a nickel; the decline in the net returns of these properties to their security holders; the gradual and serious impairment of the margin of safety for their bonds; the consequent increasing unattractiveness of electric railway securities to investors, and the extent to which the companies have failed to show an adequate return after making proper provision for maintenance, depreciation, surplus and contingencies.

"We propose to show further by affirmative proof that a 6-cent fare will increase the revenues of these companies, by introducing testimony as to the volume of traffic and the operating revenues of properties in other parts of the country where 6-cent fares have been allowed and charged.

"After this testimony has been submitted, we propose that each company shall, in such order as the commission may determine, present proof relating to its particular case; the financial results which it has achieved from operation; the return which has been secured upon the capital actually invested in the public service; the extent of the deficiency in its return, and the estimated earnings which would be produced with the proposed 6-cent fares."

New York Passes Welsh Bill

New Highway Traffic Law Is Very General in Its Application and Provides for Its Enforcement

One of the most important bills affecting street traffic, known as the Welsh bill, was passed recently by the New York Legislature and became effective on receiving the Governor's signature. It was the uniform traffic regulation act, proposed by the New York State Conference of Mayors and introduced in the Legislature by Assemblyman Clarence F. Welsh of Albany. The law is to be known as the general highway traffic law. It defines reckless driving as "driving or using a vehicle or street surface car or any appliance or accessory thereof in such a manner that it unnecessarily interferes with the free and proper ues of the highway or unnecessarily endangers users of the highway." The bill does not apply to the city of New York.

One of the provisions of the new law is that prohibiting automobiles from passing closer than 7 ft. from an electric railway car when passengers are alighting from or boarding the car. The police of Albany recently tried to enforce a similar provision of a city ordinance, but the automobile men fought the case in court and won out.

The law provides that during blockades a clear space of 10 ft. shall be maintained between street cars opposite any alley or the middle of the block if there be no alley. Subject to certain provisions pertaining to privileges of emergency and official vehicles, and except by order of a traffic officer, street cars shall have the right of way between cross streets over all other vehicles. Every electric railway car, by a signal approved by the Public Service Commission, shall warn all traffic in its rear of an intended stop or turning of the car. The driver of any vehicle proceeding upon the tracks in front of the car shall turn out as soon as possible upon signal of the motorman. The section of the law dealing with speed regulations specifies that electric railway cars shall be brought to a full stop and all other vehicles shall use extreme caution when approaching a crossing or place designated by signs as a traffic point. Local authorities are vested with power to designate by ordinance, rule or regulation the places at which such signs shall be placed.

The major portion of the law deals with regulation of motor vehicles in respect to right-of-way, signals, speed, safety zones, cab stands, and loading and unloading. When walking on the travel part of the streets and when meeting or passing vehicles, pedestrians shall obey the rules governing vehicles except as to signals.

Power is given to local authorities in cities to make, enforce and maintain reasonable ordinances and regulations governing traffic which the particular conditions make necessary. The law specifically states that it will be the duty of the members of the police department of every town or city to enforce the law strictly and impartially. The penalty for violating any provision is a fine not to exceed $10 for the first offense and not more than $25 for the second offense, or imprisonment for not less than two nor more than fifteen days. The third or any subsequent offense within one year shall be a misdemeanor and upon conviction may be punished by a fine not exceeding $100 or imprisonment not to exceed six months or both.

Duluth Fare Case Settled

In consideration of the withdrawal of legal proceedings against the Duluth (Minn.) Street Railway to test the validity of the 10-cent fare charged for rides between Duluth proper and its western suburb, Morgan Park, the company has agreed to put a 5-cent fare into effect after Jan. 1, 1918, on all of its lines in the city with universal transfer privileges. The City Council on June 18 agreed to drop condemnation proceedings against the property, and the company consented immediately to construct the New Duluth extension of its Morgan Park line and to put the 5-cent fare, with universal transfers, into effect on Jan. 1, 1920, or sooner if the war ended. The compromise reached on June 18 was reviewed on page 1157 of the ELECTRIC RAILWAY JOURNAL for June 23. On July 2, when the company announced that it would put the 5-cent fare into effect next January, instead of two years later, the litigation was dismissed. A. M. Robertson, president of the company, in a statement made before the City Council said:

"The concessions which the company is making to meet the demands of the public are costly and the city officials should consider carefully any further requests for extensions, particularly at this time when the prices of material and labor are so high."

More Skip Stops in Detroit

The Detroit (Mich.) United Railway on July 1 placed the skip-stop method of operation into effect on its Fort line. The company's weekly publication, *Electric Railway Service*, says that this form of express service on the Woodward and Jefferson Avenue lines, where it has been in operation for several months, is no longer an experiment and that the patrons on those lines, having become accustomed to the new method, would not change back to the old system. The poles along the Fort line have been painted to indicate the "car stop" corners, and measures have been taken to inform the patrons of the change, so that they may be inconvenienced as little as possible while the new system is being introduced. The skip stop on this line has been authorized for trial for a period of thirty days, and the company sees no reason why it will not prove satisfactory. The City Council has also authorized skip-stop operation on the Hamilton line, for which the stops are now being selected by the traffic bureau of the police department, and it is hoped to put it into effect about July 8.

Fares Raised to 7 Cents.—The Cumberland Railway, which connects Carlisle with Mount Holly and Newville, Pa., has increased its fare from 5 cents to 7 cents.

Mobile Cab Drivers Must Have Bonds.—As the result of the murder of a woman passenger by a taxicab driver, the city of Mobile, Ala., has passed an ordinance requiring all drivers of cabs, taxicabs, etc., to be bonded to the extent of $500.

Uniform Signal System Recommended.—At a recent discussion at Wheeling, W. Va., on the causes of accidents an official of the Baltimore & Ohio Railroad suggested the use of uniform signals by electric and steam railroads. Trainmen could thereby readily understand each other, which is highly desirable in cases of emergency.

Lighter Uniforms for Portland Men.—For the first time in its history the city of Portland, Ore., is presenting "shirtwaist" men as electric car conductors and motormen. The carmen of the Portland Railway, Light & Power Company have received permission to wear blue chambray shirts and light-weight blue trousers during the hot weather.

Lehigh Valley Has Not Asked Increase.—Contrary to recent reports in the press that the Lehigh Valley Transit Company, Allentown, Pa., had petitioned the Public Service Commission for permission to increase its fare from Allentown to Bethlehem from 10 cents to 15 cents, the company has no case pending, according to a statement by H. R. Fehr, president and general manager.

Middlesex & Boston Hearing Continued.—The second hearing on the petition of the Middlesex & Boston Street Railway, Newtonville, Mass., for authority to increase its fares was held on June 25, the day that the proposed increases were to go into effect. No decision was reached, and it is expected that several more hearings will be held. The commission has ordered that the effective date of the increase be postponed to Sept. 1.

Skip Stop Agitated in Richmond.—About 2500 people signed a petition which was presented to the Virginia Railway & Power Company, Richmond, asking that skip-stop operation be tried on Main Street. The petition was put before the City Council, but as yet has not received favorable consideration. Officials of the company say they are willing to give the plan a trial and, if it proves satisfactory, to put the skip stop in effect on all lines running into the suburbs.

Ohio Coal Business Increases.—Owing to the great demand for coal, the Hocking-Sunday Creek Traction Company of Athens, Ohio, has been engaged rather extensively in the transportation of that commodity and is preparing to increase its business. Ten mines have been opened along the line and the company is engaged in hauling the output to the steam railroads. Two additional cars were purchased recently to carry coal exclusively.

Louisville Papers Encourage Traffic Rule.—The papers of Louisville, Ky., are supporting editorially the recommendation of a committee of the Louisville Board of Trade that pedestrians on the downtown streets be required to cross streets only at established crossing places. One editorial states that "to forbid pedestrians to cross the crowded streets willy-nilly would not be a greater interference with individual liberty than their use of the streets is to drivers of vehicles."

Publicity Talks in Pamphlet Form.—The Union Electric Light & Power Company, St. Louis, Mo., which like the United Railways of St. Louis is controlled by the North American Company, has issued in pamphlet form a series of publicity talks which have appeared in the local papers in 1917. The statements were written by Frank Putnam. They deal in an interesting, frank way with rates, service, capitalization and other important phases of utility operation in which the public is interested.

School for Motormen and Conductors.—Thomas C. Moore, for many years a motorman and conductor on the local line of the Mahoning Valley Railway at Youngstown, Ohio, has been placed at the head of a school of efficiency for new men. Heretofore the new men were instructed by older employees, but in the future Mr. Moore will give them a thorough course of instruction before they are sent out on the road. He will then teach them the practical part of the work and remain with them until they are proficient.

Inducing Discussions of Carelessness.—The following paragraph is printed on the time-table folders of the Arkansas Valley Interurban Railway, Wichita, Kan.: "The management of the A. V. I. Railway requests the passengers on its trains to observe instances of reckless automobile driving near grade crossings, and when they get home to comment upon the instance at the family dinner table. In so doing they may save a life as effectually as the recipient of a Carnegie hero medal."

Misuse of Transfers Results in Fine.—Three residents of Cambridge, Mass., pleaded guilty on June 22 in the Cambridge District Court when charged with the improper use of transfer checks at the Central Square station of the Cambridge subway, a part of the Boston Elevated Railway. Each was fined $10. The defendants were William P. Clough, Charles E. Linton and Louis Kennon. One paid his fare with an old transfer check, another used a transfer check issued to him for a return ride, and the third used a check that had not been issued to him but had been obtained outside the station.

Car Crews to Report Speeding Autoists.—Thomas Lees, general superintendent of the Bay State Street Railway has issued an order to the employees calling to their attention the provisions of the law which prohibits automobile drivers from passing electric railway cars in a manner to jeopardize the safety of passengers while they are boarding or alighting. The law states that at such times a motor vehicle shall not approach within 8 ft. of the car except at points designated as safety zones or at the direction of a traffic officer. The conductors and motormen will report the license number of violators to the superintendent and he will make complaint to the police.

Military Order Contested.—In accordance with the military order respecting railroad trains on bridges across navigable streams, the windows of the Louisville-Jeffersonville and the Louisville-New Albany interurban cars are closed at the approaches to the bridges over the Ohio River. Passengers open them after the bridge is crossed. Since the middle of June, on account of higher temperatures and specially heavy traffic, passengers have made vigorous complaints. The same order is preventing the companies from using the open trailers heretofore used in the summer. Efforts have been made by officials of the Louisville & Southern Indiana Traction Company to obtain a withdrawal of the order, but thus far without success.

Mileage System of Fares Adopted.—The Western New York & Pennsylvania Traction Company, Olean, N. Y., has prepared a new schedule of rates which will become effective on July 18. The change is from the zone system of fare, now in use on all the company's interurban lines, to the straight mileage system. The rate per mile has been fixed at 3 cents, with a minimum charge of 6 cents. Commutation tickets will be sold as at present for rides between important points, and, in addition, regular 500-mile and 1000-mile mileage books will be sold at 2¾ cents per mile, good on all divisions for one year from date of purchase. The former fare charged was 7 cents. The company does not consider the change to be a rate increase since the new schedule will mean a decreased charge to many patrons. The cash fare registers used heretofore will also be eliminated and cash fare receipts adopted instead.

Free Service to Soldiers a Burden.—A. E. Potter, president of the Rhode Island Company, Providence, R. I., recently sent to Secretary of State Parker the company's reply to a resolution passed at the last session of the General Assembly requesting the company to give free transportation to the soldiers and sailors of the United States and the National Guard, while on duty. Mr. Potter wrote that the company was now carrying passengers at a loss; that the property was being operated at a loss, and that the deficit for four months of this year was $144,695. He said that in April of this year a deficit of $100,000 was shown. Mr. Potter also said that in other states no similar request was made, and that in Massachusetts the State paid the fares of its soldiers. Although there are but few troops in service in Rhode Island now, no doubt later there will be thousands, and to give free transportation to all these men would involve a very heavy expense. He said that the directors of the road had voted upon the question, and saw no reason why the company should furnish such service free.

Personal Mention

A. D. Mackie has been elected a vice-president of the Springfield (Ill.) Consolidated Railway.

S. W. Hatfield has been appointed claim agent of the Macon Railway & Light Company, Macon, Ga., succeeding M. L. Corbett.

Patrick J. Lucey, Chicago, formerly attorney-general of Illinois, has been named a member of the Public Utilities Commission of that State by Governor Lowden.

Duffy Bolls has been appointed chief lineman for the Cincinnati, Milford & Loveland Traction Company with headquarters at Milford, Ohio, to succeed Edward Lawler.

F. P. Gutelius has been elected vice-president of the Schenectady (N. Y.) Railway to succeed C. S. Sims. Mr. Gutelius has succeeded Mr. Sims also as vice-president of the Delaware & Hudson Company at Albany, N. Y.

H. L. Doherty of H. L. Doherty & Company, New York, who has been vice-president of the Cumberland & Westernport Electric Railway, Cumberland, Md., has been elected president of the company to succeed Ferdinand Williams.

M. G. Stratton of Sanderson & Porter, engineers, New York, has been appointed general manager of the Shore Line Electric Railway, Norwich, Conn., effective July 1. Mr. Stratton succeeds W. C. Callaghan of the J. G. White Management Corporation, which had charge of the operation of the road during the past year.

Howard A. Holmes has returned to the Mahoning & Shenango Railway & Light Company, Youngstown, Ohio, as assistant electrical engineer. Mr. Holmes was formerly connected with that company in various capacities until about eight years ago. He was employed at the aeronautic station of the Pensacola navy yard before returning to Youngstown.

J. B. Shickel has been appointed superintendent and electrical engineer for the Menominee & Marinette Light & Traction Company, Menominee, Mich., to succeed J. C. Sprong. Mr. Shickel was graduated from Rose Polytechnic Institute, Terre Haute, Ind., in the year 1907. Since that time he has been with the General Electric Company at Schenectady, N. Y., first in the testing department and later in the special engineering and sales departments.

H. J. MacDonald, purchasing agent and storekeeper for the Spokane & Inland Empire Railroad, has resigned to accept the position of supply agent for the Copper River & Northwestern Railway at Kennecott, Alaska. Mr. MacDonald has been connected with the Spokane & Inland Empire for two and one-half years. Prior to that time he was employed in the purchasing departments of the Spokane, Portland & Seattle Railway and the Great Northern Railway. He will be succeeded at Spokane by E. E. Pike of the Oregon Electric Railway.

Gresham Thomas, for the last six years chief clerk in the purchasing department of the Georgia Railway & Power Company, Atlanta, Ga., resigned July 1 to become buyer for the Mill Power Company with headquarters at Charlotte, N. C. Mr. Thomas was employed as a wireman seventeen years ago by Ford, Bacon & Davis, engineers, who had charge of construction work on the Atlanta property. After two years in this work he was made clerk in the company storeroom and later served as storekeeper for several years. In his new position Mr. Thomas will have charge of the purchases, through the Mill Power Company, for the Southern Power Company and allied companies.

W. O. Morgan, New York, has been elected vice-president of the Buffalo, Lockport & Rochester Railway, Rochester, N. Y., to succeed F. A. Dudley. Mr. Morgan has been connected with electric railways for many years, during most of which time he was vice-president of the Sheboygan Railway & Electric Company, Sheboygan, Wis. He was also for a time an officer of the Greensboro (N. C.) Electric Company. Mr. Morgan was associated with Ernest Gonzenbach in handling finances and legal matters in connection with properties under the management of Mr. Gonzenbach and served with the latter when he was president of the Sheboygan Railway & Electric Company. Later, when Mr. Gonzenbach became manager of the Empire United Railways, Inc., Syracuse, N. Y., Mr. Morgan was made vice-president of the company. Mr. Morgan has contributed articles to the technical press, among which was a summary of the Public Utility Law of the State of Wisconsin.

B. Waller Duncan, general manager of the Cumberland & Westernport Electric Railway, Cumberland, Md., in addition to his other duties has been elected vice-president of the company succeeding H. L. Doherty. Mr. Duncan is a native of Missouri After he completed his education at one of the State normal schools he began railway work with the St. Joseph Railway, Light, Heat & Power Company operated by H. L. Doherty & Company and has been with the Doherty organization almost continuously since that time. He worked for seven years as a conductor, beginning under J. H. Van Brunt, who was at that time superintendent. Several promotions placed him in the position of trainmaster, which he held for four years and then resigned from railway service, but later returned to the St. Joseph Company. He accepted a position in a carhouse to add to his experience and in 1913 was recommended by Mr. Van Brunt, who had become general manager of all the Doherty properties in St. Joseph, for the position of superintendent of the City Light & Traction Company at Sedalia, Mo. The next step in his upward climb was made two years later when he became general manager of the Cumberland & Westernport Electric Railway, the position he still holds.

B. W. DUNCAN

Obituary

John A. Lafferty, division superintendent of the Nashville Railway & Light Company, Nashville, Tenn., died recently at the age of fifty-three. Mr. Lafferty had been in the service of that company for twenty-seven years. He started as a motorman, but rose quickly to the position of division superintendent, which he held at the time of his death.

C. G. Abercrombie, a prominent citizen of Montgomery, Ala., died recently from a stroke of apoplexy. Mr. Abercrombie was the organizer and president of the Alabama Traction Company, which was formed several years ago, but has not yet completed its development work.

H. O. Dwight, organizer and first general manager of the Northampton (Mass.) Street Railway, died recently in Roselle, N. J. Mr. Dwight served in the Civil War and was on Sherman's march to the sea. From 1868 to 1900 he was treasurer of a missionary society, with headquarters at Constantinople. Among his most notable accomplishments was the translation of French-Turkish and English-Turkish dictionaries. For some years before his death he was secretary of the American Bible Society.

James W. Crawford, supervisor of claims of the Philadelphia (Pa.) Rapid Transit Company, died at Atlantic City on June 25. Mr. Crawford had been identified with electric railway claim department work for nearly twenty years. He began his career in this field as clerk in the claim department of the Milwaukee (Wis.) Electric Railway in 1898. In 1902 he was made claims agent of the International Railway, Buffalo, N. Y., and later was appointed comptroller and secretary of the company in charge of claims and accounting. In 1908 he resigned to become claims agent for the Chicago City Railway, where he remained until 1912, when he accepted the position of supervisor of claims of the Philadelphia Rapid Transit Company. Mr. Crawford had, in a rare degree, all of the qualifications essential to success in his chosen field. He was born in Maine in 1871 and spent his boyhood days in Minneapolis, Minn.

Construction News

Construction News Notes are classified under each heading alphabetically by States.

An asterisk (*) indicates a project not previously reported.

RECENT INCORPORATIONS

*Southwestern Utilities Company, Alva, Okla.—Incorporated in Oklahoma to own, maintain and operate street railway and lighting properties in numerous Oklahoma cities and towns. Headquarters, Alva. Capital stock, $500,000. Incorporators: Albert Emanuel, president of the Kansas Electric Utilities Company, Dayton, Ohio, and Noel R. Cascho and W. A. Parr, Alva, Okla.

FRANCHISES

Los Angeles, Cal.—The Railroad Commission of California has authorized the Pacific Electric Railway and the Southern Pacific Company to build and use jointly connecting tracks at Baldwin Park.

Canton, Ohio.—The Northern Ohio Traction & Light Company has accepted the city's franchise on Belden Avenue S. E. to Eighth Street and Belden Avenue N. E., to the Eighth Street corporation line N. E., and work on the extension will be begun as soon as possible.

Cleveland Heights, Ohio.—The Cleveland Railway accepted the franchise granted it by the City Council of Cleveland Heights on June 28. The present line on Cedar Road is to be extended to Lee Road, while the extension from Coventry Road to Lee Road must be completed within five years. A portion of the extension work will be done this year.

Northampton Heights, Pa.—The Easton Transit Company has received a franchise from the Town Council of Northampton Heights to operate its cars on and over the tracks of the Lehigh Valley Transit Company on Hellertown Road from the Fourth Street bridge to the western borough line of Northampton Heights.

Northampton Heights, Pa.—The Lehigh Valley Transit Company has received a franchise from the Town Council of Northampton Heights to operate its cars on and over the tracks of the Easton Transit Company on Fourth Street, from the western borough line of Northampton Heights to the east end of the Fourth Street bridge. The company has also received a franchise to construct a second track on Fourth Street from Bessemer Street to the division line between the Borough of Northampton Heights and the Township of Lower Saucon.

Dallas, Tex.—The Dallas Northwestern Traction Company and the Dallas Southwestern Traction Company have asked the City Commission for an extension of three months' time on their franchises, agreeing to begin actual construction work on their proposed lines from Dallas to Slidell and from Dallas to Cleburne within this time. The companies propose that in lieu of the extension of the franchises for a period of three months, they would assume responsibility for any damage that might result from the construction of a viaduct across the Trinity River near Commerce Street. The companies asked this agreement instead of that originally planned, whereby they would deed to the city 14 ft. of the street where the viaduct was to be built. E. P. Turner, Dallas, president. [June 16, '17.]

Seattle, Wash.—The City Council of Seattle has been petitioned for a franchise for the construction of 2 miles of single-track railway to serve the Carleton Park addition, along Puget Sound, from Magnolia Bluff, by Arthur A. Phinney, David P. Eastman and R. V. Ankeny. The line would connect with the tracks of the Puget Sound Traction, Light & Power Company on Fifteenth Avenue West at Lawton Way viaduct, between Smith Cove and Interbay. It is proposed that the franchise expire on Dec. 31, 1934, the date of the expiration of the franchises of the Puget Sound Traction, Light & Power Company. It is assumed that this company is to furnish the service over the new line.

TRACK AND ROADWAY

Miami (Fla.) Traction Company.—A report from the Miami Traction Company states that it will construct 1½ miles of new track at once, material for which has already been purchased.

St. Johns Electric Company, St. Augustine, Fla.—Work will be begun at once by the St. Johns Electric Company reconstructing its track in St. Augustine.

Atlanta & Anderson Electric Railway, Atlanta, Ga.—The Atlanta & Anderson Electric Railway, which proposes to build an electric line from Atlanta to Anderson, S. C., has filed a petition with the Railroad Commission of Georgia in which it asks to be allowed to issue $7,500,000 of common stock, $7,500,000 of preferred stock and $20,000,000 of bonds. It proposes to use the proceeds of these issues to build and equip its line from Atlanta to Anderson, the estimated length of the line being 140 miles, the estimated right-of-way being 100 ft. wide, and the equipment to consist of up-to-date electric locomotives, electric power cars, trail cars and other rolling stock. The towns and cities to be traversed by the line are Atlanta, Decatur, Chamblee, Doraville, Norcross, Duluth, Hoschton, Jefferson, Commerce, Royston and Anderson. The line will cross the Savannah River at a point near Brown's ferry. J. L. Murphy, Atlanta, is president. [April 28, '17.]

Rome Railway & Light Company, Rome, Ga.—The Railroad Commission of Georgia has ordered the Rome Railway & Light Company to pay one-third of the actual cost of the Fifth Avenue bridge over the Oostanaula River and Second Avenue bridge over the Etowah River, to lay tracks over the bridges and thereafter regularly operate its cars over the bridges on or before Aug. 1, 1917. The commission has also ordered that upon the completion of the Broad Street bridge over the Etowah River the company shall, upon similar terms and conditions, lay its tracks and operate cars over the bridge.

Chicago (Ill.) Surface Lines.—Announcement has been made by the Chicago Surface Lines that during the present year it will construct 20 miles of new track in addition to its regular program of track renewals.

Chicago, North Shore & Milwaukee Railroad, Highwood, Ill.—This company has been promised delivery of steel for the building of its extension to the tannery on North and Glen Flora Avenues by July 15.

Northern Illinois Light & Traction Company, Ottawa, Ill.—Work will be begun at once by the Northern Illinois Light & Traction Company, a subsidiary of the Illinois Traction System, improving its street car line and lighting system in Ottawa. It is estimated that the improvements will cost about $80,000.

Rockford & Interurban Railway, Rockford, Ill.—It is reported that the Rockford & Interurban Railway will make improvements in Freeport during the coming summer to cost approximately $25,000, providing the City Council grants it the right to extend its tracks on Mechanic Street from the present end of the line southward to Galena Street, where the company has leased a site for a new station.

Iowa Railway & Light Company, Cedar Rapids, Iowa.—This company reports that it has added 1½ miles of single track to its line in Marshalltown.

Wichita-Walnut Valley Interurban Railway, Wichita, Kan.—Right-of-way has been practically secured by this company from Wichita to Augusta, and work of grading will start within the next few weeks. Charles Payne, secretary. [May 19, '17.]

Washington, Baltimore & Annapolis Electric Railway, Baltimore, Md.—It is expected that this company will make extensive track improvements near Annapolis Junction for the army cantonment to be established there.

Kensington (Md.) Railway.—This company reports that when prices for material and labor are normal its proposed extension to Sandy Spring will be completed.

Ironwood & Bessemer Railway & Light Company, Ironwood, Mich.—A report from this company states that construction would be begun on July 1 on its proposed extension from Gile to Montreal, about 1½ miles.

McComb & Magnolia Railway & Light Company, McComb, Miss.—Announcement has been made by A. H. Jones, manager of the McComb & Magnolia Railway & Light Company that this company's proposed line to connect McComb, Magnolia and Summit will be constructed immediately. [April 29, '16.]

Kansas City (Mo.) Railways.—Work will soon be begun by the Kansas City Railways on the construction of its line on Eighteenth Street from Central to Kansas Avenue.

***Montana Power Company, Butte, Mont.**—Surveys have been begun for the construction of an electric railway and power line from Twin Bridges to the Bielenberg-Higgins and Lake Shore mines. The railway will be 14 miles long. The line will be built under the supervision of the Montana Power Company, but is to be the property of the Bielenberg-Higgins and Lake Shore mines, which will pay the cost of construction, estimated at $26,000. A high-tension line from Twin Bridges, carrying about 49,000 volts, will supply the power, but will be reduced to about 2000 volts at the Higgins mines and carried from there to the Lake Shore mines.

***Dillon, Mont.**—It is reported that a company is being organized to construct an electric railway from Dillon to Piedmont, via Twin Bridges, about 60 miles. A. J. Wilcomb, Twin Bridges, is reported interested.

New York (N. Y.) Railways.—The Board of Estimate has adopted the report of the franchise committee recommending the construction of a two-track surface railway through West Eighty-sixth Street from Central Park West to Broadway.

Southern Public Utilities Company, Charlotte, N. C.—An extension is being built by the Southern Public Utilities Company from Winston-Salem to Kernersville, 11 miles.

Hillsboro, Cynthiana, Bainbridge & Chillicothe Traction Company, Hillsboro, Ohio.—The Public Utilities Commisson of Ohio has approved the application of the Hillsboro, Cynthiana, Bainbridge & Chillicothe Traction Company to issue $400,000 of bonds, the proceeds of which are to be used in building its proposed line from Hillsboro to Chillicothe. J. C. Anderson, Chillicothe, secretary. [March 17, '17.]

Muskogee (Okla.) Electric Traction Company.—R. D. Long, general manager of the Muskogee Electric Traction Company, announces that he is prepared to build an interurban railway line from Tulsa to Henryetta and from Henryetta to Oklahoma City, with a branch line from Muskogee to Okmulgee. The line has already been financed, Mr. Long says, and actual construction work will begin as soon as he is able to get materials on the ground.

Southern Pacific Company, Portland, Ore.—The electric railway service in Albany has been discontinued by the Southern Pacific Company. According to its agreement with the City Council, when it was awarded the franchise, the company will have to remove the tracks and repair the street within a year from the discontinuance of service.

Montgomery Transit Company, Philadelphia, Pa.—This company reports that it has under consideration an extension from Harleysville to Soudertown, 4.3 miles, and from Harleysville to East Greenville, 12 miles.

Stroudsburg, Water Gap & Portland Railway, Stroudsburg, Pa.—Subject to the approval of the Public Service Commission of Pennsylvania, a new company, to be known as the Stroudsburg Traction Company, will lease and in future operate the Stroudsburg Passenger Railway and the Stroudsburg, Water Gap & Portland Railway. The new company will have a capital of $200,000 with a bond issue of $100,000, and an issue of $164,000 on the Water Gap Road will be assumed. The arrangement is expected to go into effect on Aug. 1. Physical connection between the two roads will be made during the fall and track connection will then be complete, with the exception of one grade crossing, from the Delaware, Lackawanna & Western Railroad passenger station in East Stroudsburg to Sixty-ninth and Market Streets, Philadelphia.

Williamsport (Pa.) Passenger Railway.—Surveys will soon be made for the construction of an extension of the Williamsport Passenger Railway from Third Street, Williamsport, to Newberry.

Houston (Tex.) Electric Company.—Plans are being contemplated by the Houston Electric Company for the construction of an extension to the coming National Guard mobilization camp west of the city. The extension will be about 1 mile, beginning at the western end of the West End line.

San Antonio (Tex.) Traction Company.—This company has under consideration the construction of an extension of its lines to South San Antonio, which would furnish transportation service to Camp Kelly, the aviation post.

Salt Lake & Utah Railroad, Salt Lake City, Utah.—Nearly all the grading has been completed and track laying is well under way on this company's 12-mile extension from Salt Lake City to Pleasant Green, via Chesterfield and Granger, and it is expected that the line will be ready for operation by the end of the summer.

Yakima Valley Transportation Company, North Yakima, Wash.—A report from the Yakima Valley Transportation Company states that it is now extending its Selah-Taylor line about 2½ miles.

Seattle & Rainier Valley Railway, Seattle, Wash.—This company reports that construction is under way on its Dearborn and Genesee Street extensions.

Eastern Wisconsin Electric Company, Sheboygan, Wis.—A proposed contract has been submitted by the Eastern Wisconsin Electric Company to the city of Oshkosh whereby it will spend between $200,000 and $250,000 on local improvements, provided the city will permit the elimination of certain unproductive track.

SHOPS AND BUILDINGS

Boston, Mass.—Bids will be received by the Boston Transit Commission until July 12 for the wall finish of the Andrew Square and Broadway stations of the new South Boston tunnel, which is nearing completion.

Kansas City (Mo.) Railways.—It is reported that this company will build new car shops at Ninth Street and Lister Avenue.

Hocking-Sunday Creek Traction Company, Nelsonville, Ohio.—A report from this company states that it contemplates building a new carhouse.

POWER HOUSES AND SUBSTATIONS

Chicago, Milwaukee & St. Paul Railway, Chicago, Ill.—Preparations are being made for the construction of the large substation to be erected in Tacoma in connection with equipping the Cascade division of the Chicago, Milwaukee & St. Paul Railway for electrical operation. The Tacoma station will furnish energy for the Tacoma yards and for the division between Tacoma and Seattle.

Iowa Railway & Light Company, Cedar Rapids, Iowa.—This company reports that it is installing a G.E. 500-kw, 600-1200-volt automatic substation, also a 2000-kw. G.E. automatic hydroelectric plant.

Ottumwa Railway & Light Company, Ottumwa, Iowa.—This company is installing a new 12,500-kw. capacity turbine generator unit.

Bangor Railway & Electric Company, Bangor, Me.—This company will extend its transmission line from Somerville to Southwest Harbor, 12 miles. Another line will be extended from Milford to Lincoln, 33 miles.

City Light & Traction Company, Sedalia, Mo.—This company plans to spend about $60,000 on improvements to its light plant on East Broadway, Sedalia. A 150-ft. stack will be erected and a new switchboard and new generating unit installed.

Interborough Rapid Transit Company, New York, N. Y.—A new one-story power plant, about 30 ft. x 60 ft., will be built by the Interborough Rapid Transit Company at 600 West Fifty-ninth Street. The structure will cost about $15,000.

West Virginia Traction & Electric Company, Morgantown, W. Va.—This company will increase the capacity of its local plant by the installation of a 1250-kw. turbo-generator unit, giving the plant a total capacity of 3500 kw. The generator will be moved from the plant of an affiliated company at Lebanon, Pa.

Manufactures and Markets

Discussions of Market and Trade Conditions for the Manufacturer, Salesman and Purchasing Agent

Rolling Stock Purchases Market Quotations Business Announcements

What Are Business Prospects for the Next Six Months?

No Reduction in Prices Expected—Equipment Orders Are Small in Amount—Fair Increases May Bring Relief

Many divergent views are now obtainable on the business prospects for electric railway manufacturers during the last half of 1917. Never before have authoritative news and statistical estimates on business been sought so eagerly by the manufacturer or the railway operator. There are really no precedents by which business policies for the coming months can be determined, but there are many fundamental principles which do not change.

Recently a man of large business affairs in the Southwest, whose remarks are pertinent to any industry at this time, in addressing a representative gathering of salesmen on the subject of "Keep Business Going as a Patriotic Duty," had this to say about building operations: "Some people reason that lower prices will prevail later. I cannot understand how they arrive at this conclusion, because the change has come about by the decrease in the supply of almost everything and by the increase in the supply of money. So long as the war continues the number of producers will not increase, but, on the contrary, will continue to decrease. The demands in this country will increase by reason of our entering into the war; the labor supply will decrease; and, hence, the price of everything must increase."

EQUIPMENT ORDERS ARE SMALL

Some manufacturers report a sharp falling off in electric railway inquiries, but state that their general business is fine because of increased sales in other fields. In the railway equipment section of the electric railway field, which is considered a good index for the entire field, the number of inquiries for the purchase of railway equipment is said not to have dropped off during the month of May as compared with April. However, the total value of the equipment covered by such inquiries was very much less in May than in April. In other words, the inquiries were for small quantities of equipment.

It is the opinion of some manufacturers that inquiries for the next few months will drop off materially. But, in explanation, it must be remembered that the summer months usually produce less inquiries for car equipment than do the spring and fall seasons. To quote one manufacturer: "Observations give me the firm impression that equipment buying generally is going to be pretty slow during this summer season, with the exception of here and there where pressure will demand additional service, due to activities in connection with supplying materials for war purposes."

BOOST THE RAILWAYS' GAME

Most manufacturers express a hopeful view for their electric railway business. They recognize the conditions which have surrounded the operation of the properties, but in the future they see relief for the roads through reduced municipal burdens, increased fares and improved operating methods. Those manufacturers who really have the welfare of the electric roads at heart are sympathetically assisting in every consistent way to gain for the roads much-needed relief. And now that the increased fare campaign is in full swing in many cities it will behoove thoughtful manufacturers and their representatives to keep well informed on the news of progress being made before engaging in conversation with a railroad executive who also has the welfare of the industry at heart.

Purchasing Agent and Salesman Co-operate

Salesman Should Be Referred to Proper Department Heads—Frankness Will Cure the Long-Winded Salesman

By L. A. HALL
Purchasing Agent Fonda, Johnstown & Gloversville Railroad, Gloversville, N. Y.

I fully agree with the spirit of the article by W. McK. White on page 1031 of the June 2 issue of the JOURNAL. Two of the points touched on I think are of special interest, first, the purchasing agent who permits a salesman to assume his department has final decision on a definite deal, and second, "the long-winded salesman."

It is the duty of the purchasing agent to refer a salesman to the proper department in connection with the sale of any particular article in which the purchasing agent thinks his company may be interested. This is true especially where the practice is to have the head of the department pass on the merits of the article. There is nothing to be gained in trying to mislead the salesman. The purchasing agent knows the system followed in his own organization, the salesman may not; so we not only save our time but that of the salesman by putting him on the right road.

As regards the "long-winded salesman," why cannot this difficulty be taken care of by being open or frank with the salesman? If he happens to call when you are busy and you intend to give him an interview, why not do it? Come right out and let the salesman know you are busy; take up with him anything you have in mind and let him do likewise, but do not enter into conversation on subjects entirely foreign to your business. It takes two to start an argument, likewise a conversation. I believe a purchasing agent should give due consideration to the time of the salesman, and likewise the salesman with the purchasing agent. Nowadays, I do not think we have to worry much about the "peddler." They do not last long with their own employers, and while they do last the purchasing agent can put up with a little trouble. There are many things of interest to gather from the salesman and possibly vice versa. Our interests to some degree are dependent upon each other, so why not work together? Taking the thing as a whole, I think it can be boiled down to a "Be Brief" proposition.

Deliveries on Fenders and Wheel Guards Fair

Railways Anticipating Demands — Poor Freight Service and Crowded Mill Conditions Cause Many Delays—Car Designers Should Take Fenders Into Account

The manufacturer of fenders and wheel guards is affected by the raw material situation as are other specialty makers, but where orders are placed sufficiently in advance of actual requirements, no difficulty is experienced in meeting the demands for this equipment. In cases where fenders and wheel guards are ordered as soon as the car order is placed, the manufacturer can make deliveries by the time the car builder or railway company is ready to install them. Although stock has been ordered well in advance, it is practically impossible to get any reasonable delivery of freight shipments from mills, and this has caused embarrassment on several occasions. Again, malleable castings cannot be obtained from the foundries in less than four to six months, and this has necessitated delays in a number of deliveries.

The railways generally are now seeing the advisability of equipping cars with accessories that will give the maximum amount of protection. They are standardizing on a fender or wheel guard that has shown the highest efficiency under actual service conditions. Companies desiring to equip their entire systems many times do not care to make the entire investment at one time and therefore contract to equip two or three cars per month. This can be done at a very nominal cost, thus enabling them to equip their entire system probably within a year. Front-end protection was formerly looked upon only as being necessary to comply with the law, but the efficiency of proved devices has forced the railways to recognize the value of this protection. Front-end accidents in many instances have called attention to this condition, with the result that they are now considered just as important as accidents caused by people alighting from or boarding cars.

Fenders Should Be Taken Into Account in Design of Car

When cars are designed the fender question should not be left to a point where it is said, "Now that the design is finished, where shall we hang the fenders?" The matter has often been put up to the fender people to try to adjust their equipment to suit the car. In some instances, very little clearance is given; in fact, many times clearances, etc., for fenders or wheel guards have been entirely overlooked. It is just as important to make provision for wheel guards or for the protection of the front end as it is to lay out platforms or any other part of the car. A good many railways have given careful consideration to this problem, and as a result of their co-operation the proper provision for front-end protection is thereby secured, giving the maximum form of protection to the public as well as to the railway.

Co-operation Will Reduce Selling Costs

Constructive Criticism Should Be Welcomed—Discussion of the Sore Spots Invited

The "safety first" attitude of salesmen toward customers is clearly illustrated in several communications recently received. One of these letters discussess the article on "Reducing the Selling Cost," by W. McK. White (on page 1031 of the June 2 issue). This letter illustrates the fact that a salesman will converse freely on the merits of his goods, but when the topic under discussion centers around possible deficiencies on the part of his customers, the salesman is not prone to talk freely. As one man puts it: "I have read this article with a great deal of interest and can say frankly that few of us have the courage to state this thing as positively as Mr. White has done in his article. I am inclined to agree with him in what he says about the waste of time and expense consumed in bringing to the attention of some electric railway companies the fact that they actually require certain materials."

Because this salesman, before entering his present line of work, successfully filled positions as the department head of a number of large roads, he can, when visiting properties, undoubtedly make good suggestions to the master mechanics. He probably sees the actual need of the road to make purchases of his and other salesmen's products. And when a master mechanic gets hold of a salesman of this sort he should pump him for every worth-while suggestion obtainable.

Talking About the Other Fellow

Referring again to Mr. White's article, one sales manager has mentioned a factor that may contribute to the increase of the selling cost of most any article. He says: "It is a common tendency of electric railway men to consume the time of a salesman in endeavoring to secure information which usually is quite important to the railway company, but which is of no particular concern to the salesman. Such information has to do with the general condition of operation and the labor situation on other railway properties which the salesman visits. No doubt any salesman would be very glad to give this information freely, even at the sacrifice of the time necessary, providing the railway representative then showed his willingness to listen to the salesman tell his own story."

Successful salesmanship requires that characteristic which enables a man to speak out frankly and constructively, even though he may disagree with his possible customer. With this in mind, if there are in the electric railway sales field practices which are working hardships on both the buyers and the sellers, is it not to the best interests of the industry that they be discussed frankly by both parties? The recent articles by Mr. White and Mr. Horne in this department of the Electric Railway Journal have definitely set down some of these questions, and if the weaknesses are pertinent to the industry rather than to certain individuals, this paper will gladly assist by throwing its columns open for a frank discussion of how closer co-operation between the buyers and sellers may reduce the selling cost.

Activity in Transmission Line Material Sales

Manufacturer Gives Interview on Work in Central States—Railways Installing Branch Power Service—Forehandedness in Buying for 1918—Deliveries Cited

Transmission line materials are selling actively for installation in the central states, according to Max A. Berg, secretary of the Electric Service Supplies Company. The volume of business is not as great as it was six months ago, but still it is especially good. There is a scarcity of large projects, but the installation of branch power lines fed from railway transmission systems and the general expansion work of the existing high-tension transmission systems, combine to warrant the statement that this portion of the field is particularly active.

Some of the properties in the central states which have recently purchased transmission material include the Terre Haute, Indianapolis & Eastern at Terre Haute; Central Illinois Public Service Company; Ohio Electric Railway; Northern Ohio Light & Traction Company; Fort Wayne & Northern Indiana Traction Company; Iowa Railway & Light Company; Fort Dodge, Des Moines & Southern Railway, and the L. E. Myers Company of Chicago, which has recently made purchases for several of its associated properties.

According to Mr. Berg the deterring effect of high prices and slow material deliveries has largely been counteracted by the unusually large demand for power, so that orders are now being placed not only for substantial amounts of material but also for deliveries long into the future. Forehandedness in attention given by companies to the construction and maintenance demands of 1918 will reward many who are now looking that far ahead.

Mr. Berg states that the principal lines of material which his company manufactures for railway and other transmission line work are sharing about equally in the demand. These specialties include the Keystone steel triangle arm, metal truss pins and "never-creep" anchors. Deliveries on pins and metal arms even for large orders can now be made direct from stock if standard sizes are ordered.

Deliveries on high-tension porcelain are now quoted at four to six months, depending upon the design of the insulators, and according to Mr. Berg, if it had not been for the high prices of copper and the crowded condition of the porcelain factories, the 1917 high-tension transmission material business would have far exceeded all earlier records.

Jamaica's Electrical Imports

American manufacturers furnish most of the electrical supplies and equipment used in Jamaica, according to a report recently received by the Bureau of Foreign and Domestic Commerce. There is no local manufacture of these products. The imports are grouped separately under two headings, as follows: (1) Apparatus necessary for generating, storing, conducting, converting into power or light and measuring electricity, and (2) telegraph and telephonic wire and apparatus. The imports of both groups fall under the list of articles admitted duty free.

During 1914 the imports of the first group amounted to $51,252 and in 1915 to $34,021, and the second group to $6,966 and $6,588 respectively. That the United States supplies such a large percentage of the electrical equipment imported into Jamaica may be attributed to the fact that in many instances the original installations consisted of American equipment.

Export Trade Conference at Springfield, Mass.

A conference lasting one week, and devoted entirely to the problems of export trade, closed at Springfield, Mass., on June 30. Emphasis was laid upon the vital necessity of completely fulfilling specifications and promises to foreign purchasers, including shipments on dates agreed upon, and packing as required by foreign buyers. Much time was also given to reviewing credit facilities available through enterprising American banks. Among the speakers were J. W. Brooks, vice-president Pass & Seymour, Solvay, N. Y.; Fred S. Phillips, export manager American Ever Ready Works, Long Island City, N. Y.; and A. W. Gilbert, Chapman Valve Manufacturing Company, Indian Orchard, Mass.

Various points brought out in the conference may be touched upon. The United States needs export trade because it is the greatest producing nation and must have foreign outlets for surplus products or suffer the evils of glutted markets at home to the detriment of capital and labor alike. Patience is necessary in developing profitable foreign trade. Mushroom jobbers should be avoided. The government should foster co-operative efforts by competitive manufacturers seeking foreign outlets. We should freely accord long-time credits to foreign buyers. Foreign trade agencies are the eyes of export business. Relief from restrictive legislation is needed. Co-operation and standardization are also needed in American manufacturing plants to meet foreign competition, including uniform system cost accounting where possible.

Large Circuit Breaker Order

The Interborough Rapid Transit Company, New York City, has ordered 505 Westinghouse carbon-break circuit breakers ranging in capacities from 1000 to 12,000 amp., including 196 600-amp. hand-operated breakers with overload trip, mounted on panels with 2400-amp. knife switches for the direct-current feeders; ninety-eight 12,000-amp. breakers for use with 4000-kw. rotary converters; fourteen 8000-amp. and forty-five 4000-amp. breakers for use with 3000-kw. and 1500-kw. rotary converters, and smaller sizes for equalizers and auxiliaries. This equipment had been ordered for use in new substations and in additions to the existing ones, made necessary by the 170 miles of subway and elevated extensions in New York City.

ROLLING STOCK

Tulsa (Okla.) Street Railway has ordered six double-end, pay-as-you-enter, safety motor cars from the American Car Company, St. Louis, Mo., and has specified the following dimensions and equipment:

Seating capacity 34	Hand brakes. American Car, with Pittsburg ratchet drop handle
Length over bumpers, 27 ft. 9½ in.	Headlights. Golden Glow, S-M-95
Length over vestibule, 26 ft. 9½ in.	Journal boxes ..... Brill, with Gurney ball bearings
Width over all ..... 8 ft. 0 in.	Motors ..... Two inside hung, GE—258
Rail to trolley base ... 12 ft. 6 in.	Sanders ... Keystone air sanders
Body ..... Semi-steel	Sash fixtures ..... Bronze
Interior trim ..... Bronze	Seats ..... American Car Co.
Headlining ... None, rafter finish	Seating material ..... Cherry wood, steel and canvas lined rattan
Roof ..... Arch	
Air brakes, Safety Car Devices Company	Springs ..... Brill
Axles ..... Brill	Step treads ..... Feralun
Bumpers ..... American Car channel iron	Trolley catchers ..... Keystone
Car trimmings ..... Brill	Trucks ..... Brill 78-M-1 special
Couplers .... None, pull bars used	Ventilators ..... Brill
Curtain material ..... Pantasote	Wheels ..... 24-in. diam.
Designation signs ..... Hunter	Special devices ... Faraday high voltage push button system
Door mechanism .... Safety Car Devices Co.—air operated	

Macon Railway & Light Company, Macon, Ga., is building six city cars in its shops.

Puget Sound International Railway & Power Company, Everett, Wash., has placed an order for twelve one-man safety cars.

Ohio Electric Railway, Springfield, Ohio, expects to purchase four motor express cars, sixteen flat trail cars, and sixteen box trail cars at a cost of $130,000.

Little Rock Railway & Electric Company, Little Rock, Ark., noted in the May 5 issue as ordering six double-end closed motor cars from the J. G. Brill Company through the United Gas & Electric Corporation, has specified the following details for this equipment.

Number of cars ordered 6	Gongs ..... 12 in. Brill Dedenda
Date of order ... April 27, 1917	Heaters ..... Consolidated
Date of delivery ... Oct. 1, 1917	Headlights ..... Crouse-Hinds
Builder ..... J. G. Brill	Journal boxes ..... Brill
Type ..... Closed motor	Lightning arresters .. not placed
Seating capacity 52	Motors ..... Four West. 506-A-2
Over bumpers ..... 47 ft. 8 in.	Registers ..... International
Over corner posts ..... 34 ft. 8 in.	Sanders ..... not placed
Over all ..... 8 ft. 7 in.	Sash fixtures .... O. M. Edwards
Rail to trolley base ... 11 ft. 1 in.	Seats. Hale & Kilburn No. 300-A
Body ..... Semi-steel	Seating material ... Cherry wood
Interior trim ..... Cherry	Step treads .. Amer. Abrasive Co.
Headlining ..... ¼ in. Nevasplit	Trolley catchers .... Earle No. 7
Roof ..... Arch	Trucks ..... Brill 77-E-1
Air brakes ..... West.	Ventilators .. Railway Utility Co.
Axles ..... Hammered steel	Wheels, So. W. Co., 26-in. cast iron
Bumpers .... Rico anti-climbers	Special devices .... Consolidated buzzer system, Ellcon stanchions, Railway Utility thermostats, Brill center and side bearings, Brill graduated spring system and Brill bolster guide arrangement.
Car trimmings ..... Bronze	
Control ..... West.	
Curtain fixtures. Forsythe No. 88	
Curtain material. .... Pantasote	
Designation signs .. Keystone, Ill.	
Door mech. .Burdette Rowntree	
Wheelguards ... H. B. lifeguards	

NEW YORK METAL MARKET PRICES

	June 28	July 5
Prime Lake, cents per lb.	32½	31¾
Electrolytic, cents per lb.	32½	31¾
Copper wire base, cents per lb.	36	36
Lead, cents per lb.	11¾	11⅜
Nickel, cents per lb.	50	50
Spelter, cents per lb.	9⅜	9¼
Tin, Straits, cents per lb.	62	62
Aluminum, 98 to 99 per cent, cents per lb.	61	59

OLD METAL PRICES

	June 28	July 5
Heavy copper, cents per lb.	28½	28
Light copper, cents per lb.	25½	25
Red brass, cents per lb.	17½	20
Yellow brass, cents per lb.	18	18
Lead, heavy, cents per lb.	8¾	8¾
Zinc, cents per lb.	7¼	7¼
Steel car axles, Chicago, per net ton	$53.00	$50.00
Old Car wheels, Chicago, per gross ton	$43.00	$39.00
Steel rails (scrap), Chicago, per gross ton	$48.50	$49.50
Steel rail (relaying), Chicago, per gross ton	$53.50	$59.50
Machine shop turnings, Chicago, per net ton	$20.00	$19.50

CURRENT PRICES FOR MATERIALS

	June 28	July 5
Rubber-covered wire base, New York, cents per lb.	36½	36½
No. 0000 feeder cable (bare), New York, cents per lb.	36½	36½
No. 0000 feeder cable stranded, New York, cents per lb.	33¾	33¾
No. 6 copper wire (insulated), New York, cents per lb.	33	33
No. 6 copper wire (bare), New York, cents per lb.	36	36
Rails, heavy, Bessemer Pittsburgh	$38.00	$38.00
Rails, heavy, O. H., Pittsburgh, per gross ton	$40.00	$40.00
Wire nails, Pittsburgh, per 100 lb.	$3.20	$4.00
Railroad spikes, 9/16 in., Pittsburgh, per 100 lb.	$4.50	$5.00
Steel bars, Pittsburgh, per 100 lb.	$4.50	$4.50
Sheet iron, black (24 gage), Pittsburgh, per 100 lb.	$7.90	$8.40
Sheet iron, galvanized (24 gage), Pittsburgh, per 100 lb.	$9.30	$9.55
I-beams over 15 in., Pittsburgh, cents per lb.	10	10
Galvanized barbed wire, Pittsburgh, cents per lb	$4.85	$4.85
Galvanized wire, ordinary, Pittsburgh, cents per lb.	$4.85	$4.85
Cement (carload lots), New York, per bbl.	$2.22	$2.22
Cement (carload lots), Chicago, per bbl.	$2.31	$2.31
Cement (carload lots), Seattle, per bbl.	$2.60	$2.60
Linseed oil (raw, 5 bbl. lots), New York, per gal.	$1.18	$1.16
Linseed oil (boiled, 5 bbl. lots), New York, per gal.	$1.19	$1.17
White lead (100 lb. keg), New York, cents per lb.	12¾	12¾
Turpentine (bbl. lots), New York, cents per gal.	43	42½

TRADE NOTES

Lincoln Electric Company, Cleveland, Ohio, has opened an office at 10 High Street, Boston, Mass., under the direction of W. A. Blachford.

Walter A. Zelnicker Supply Company, St. Louis, Mo., has added W. H. Dayton to its sales staff. Mr. Dayton was formerly secretary and purchasing agent of the Railroad Supply Company, Chicago.

D. B. Mugan, formerly associated with the Illinois Central Railroad Company, in charge of its electrical depart-

ment at New Orleans, La., has been appointed resident manager of the Edison Storage Battery Supply Company, with headquarters at 201 Baronne Street, New Orleans.

McGovern & Company, New York, N. Y., announce that they have opened an office at suite 514, 25 Broad Street, and will conduct a general brokerage business, specializing in public utilities. William J. and Hugh A. McGovern are the principal members of the firm.

T. G. Whaling, who has been assistant general manager and sales manager of the Westinghouse Lamp Company, has been appointed general manager. Mr. Whaling will continue also to exercise the functions of sales manager of the company.

Dunn Wire-Cut Lug Brick Company, Conneaut, Ohio, reports that the Medora Shale Brick Company, Medora, Ind., has taken out licenses under the Dunn wire-cut patents. The addition of the Medora company gives the Dunn company forty-six licensees, operating seventy-one plants in twelve states.

J. E. Johnson has been elected vice-president in charge of purchases and sales of the Laconia Car Company and will be in charge of the New England sales office at 60 Congress Street, Boston. L. N. Hathaway has been appointed purchasing agent of the company, reporting to Mr. Johnson. Mr. Hathaway will make his headquarters at Laconia, N. H.

W. W. Butler, vice-president of the Canadian Car & Foundry Company, Montreal, has announced the appointment of R. H. Parks as operating manager of the company. Mr. Parks will have operating charge of all the car plants of the company. He has been identified with the car building industry for many years and went to Canada from the Bettendorf Car Company of Davenport, Iowa. W. S. Atwood has been appointed assistant to the vice-president and managing director.

L. B. Stillwell Engineering Corporation, New York, N. Y., has been organized to act as constructing engineer in the design and construction of steam and hydroelectric, lighting, railway and power plants; electric transmission, electrification of railroads, the design and construction of steel rolling stock, railroad terminals, steam heating plants and general engineering construction work. The officers are: Lewis B. Stillwell, president; H. St. Clair Putnam, vice-president and general manager; Hugh Hazelton, vice-president; W. Everitt Rundle, secretary and treasurer. The principal office of the corporation will be at 100 Broadway.

David A. Munro has assumed the management of the railroad department of the Railway Specialties Corporation, with offices at 29 Broadway, New York City. Mr. Munro was born in Scotland and came to this country in February, 1907. His first entry into the railroad field was with the receiver of the Metropolitan Street Railway, New York City, whose service he entered in October, 1907, in the auditor's office. He resigned from that position to enter the service of George W. Linch, receiver Second Avenue Railroad, as assistant to the auditor. He was shortly afterward appointed purchasing agent to the receiver in addition to his other duties. On Dec. 1, 1916, he resigned and entered the supply field as manager of the J. N. Johns Manufacturing Company, a position he held until his present connection with the Railway Specialties Corporation.

Samuel L. Nicholson, who has been sales manager of the Westinghouse Electric & Manufacturing Company since 1909, has been promoted to the position of assistant to the vice-president, with headquarters at East Pittsburgh. Mr. Nicholson is unusually well known throughout the electrical profession because of his varied activities bringing him in contact with its numerous branches. His first electric railway work was with the Philadelphia office of the Sprague Electric Railway & Motor Company, and while with this company he assisted in the construction of the Neversink Mountain Railway at Reading, Pa. Later he built the Bristol (Tenn.) Belt Line Railway. In 1892 he became connected with the Short Electric Company. On the absorption of this company by the General Electric Company in 1893 he spent several years successively with the Technic Electric Works, James Boyd & Brothers, the Cutter Electric & Manufacturing Company, and the C. & C. Electric Company, until, in 1898, he joined the New York sales office of the Westinghouse Electric & Manufacturing Company. On the reorganization of the sales department in 1904, he was made manager of the industrial department, which position he successfully filled until his selection as sales manager of the company in 1909. Mr. Nicholson is well known in the electric railway field as a tireless and indefatigable executive of unquestioned ability, and his hosts of friends all over the country will rejoice to learn of the increased field of activities awarded him in his new position.

Charles S. Clark has been elected vice-president and general manager of the Laconia Car Company, with headquarters at Laconia, N. H. Mr. Clark is widely known in steam and electric railway circles. He is a native of Winchester, Mass., and entered the steel business in early life, becoming New England representative of the Pennsylvania Steel Company with headquarters at Boston, Mass., in 1890, and retaining this post for twenty-six years. For the past twenty-one years Mr. Clark has been secretary of the Massachusetts Street Railway Association, and holds a unique place in the regard and affections of all connected with this organization, which is otherwise composed exclusively of officials or legal advisers of operating companies. About fifteen years' service in the First Corps of Cadets, M. N. G., stand to the credit of the Laconia company's new manager, who was retired in 1911 with the rank of captain.

CHARLES S. CLARK

NEW ADVERTISING LITERATURE

Cutler-Hammer Manufacturing Company, Milwaukee, Wis.: A booklet on magnetic separator pulleys, used in removing tools, iron bars, etc., from coal as it passes to a crusher.

General Electric Company, Schenectady, N. Y.—Bulletin No. 44,424 on "GE-203-P Ventilated Commutating Pole Railway Motor." This motor is an improved form of the GE-203 and is of the box frame type. The GE-203 600-volt motor has a rated capacity of 50 hp. on 600 volts, with an input of 74 amp. The continuous rating for a temperature rise of 65 deg. C. by thermometer is 46 amp. at 600 volts. The same manufacturers have also issued a twenty-four page bulletin, No. 45,601-A, on "Aluminum Lightning Arresters for Alternating-Current Circuits." This bulletin supersedes bulletin No. 45,601, and contains valuable data and diagrams on this installation. The General Electric Company claims that the aluminum type of lightning arrester is superior in protective qualities to any other.

New Publication

Electrical Measurements in Practice. By F. Malcolm Farmer, chief engineer of the Electrical Testing Laboratories. McGraw-Hill Book Company, Inc., New York. 359 pages. Cloth, $4 net.

This book is a compilation of the available information regarding instruments and methods for practical electrical measurements of all kinds. Coming as it does from an engineer prominently identified with one of the leading commercial testing laboratories the book may be assumed to describe only those instruments and methods which are of a practical character. It is interesting to note, however, that it is not substantially different from books along the same lines prepared by teachers, who might be under suspicion of being academic. Mr. Farmer's descriptions are concise and clear, but he does not compare the several methods of making any one of the numerous electrical measurements as fully as might be desired. The book will, however, be useful to anyone who has electrical testing to do, in furnishing him with several practical plans for making any desired measurement.